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The next Motor Boat Show opens at the Grand Central Palace in New York City on December 10th, just about six weeks from the date of this issue of MoToR BoatinG. It is going to run until December 18th, just one week before Christmas. As this is going to be a time of the year when every one's thoughts are crowded with other matters, it is well for all of us to remember the dates of the show so that we may properly plan our time for these busy weeks.

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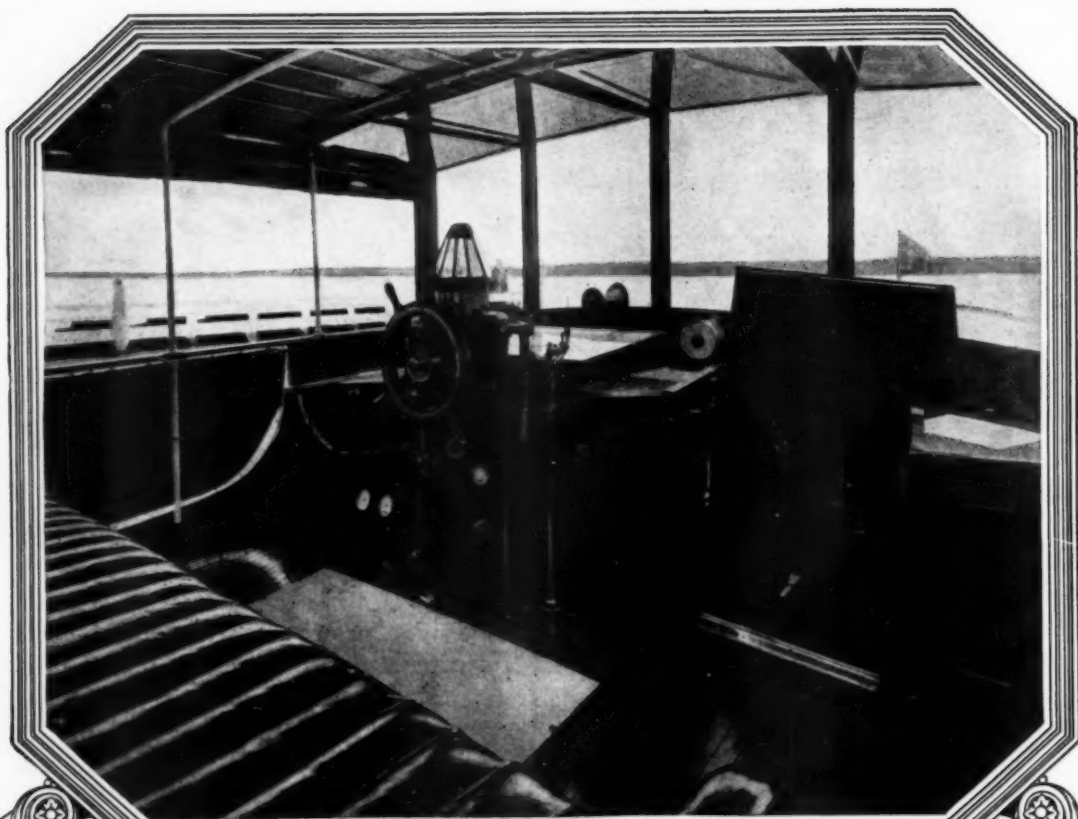
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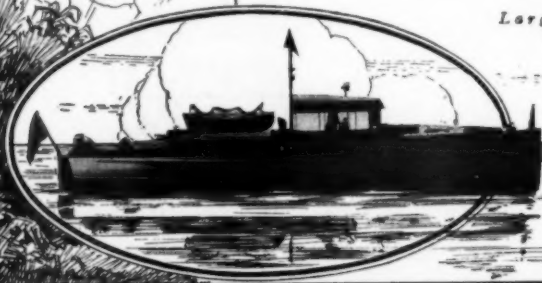
TWIN screw power plants, each controlled independently of the other from the bridge deck, give the 54-foot Standardized Express Cruiser remarkable maneuvering qualities—especially welcome in Florida waters where channels are winding. Moderate draft helps further to make this craft ideal for the South. The speed is 20 miles an hour or more, as may be desired.

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MOTOR BOATING



F. G. Ericson, of Toronto, at the wheel of Belle Isle Bear Cat. At Mr. Ericson's right is Arthur Utz and at his left Frank Waitles of Buffalo

THE new trophy, to be known as the Wood-Fisher Trophy, offered by Carl G. Fisher and Gar A. Wood, to be first raced for at Detroit next summer, will be governed by exactly the same conditions as those governing the competition for the original Fisher Trophy, with the exception that instead of being open only to boats powered with stock marine motors it will be a free-for-all, open to any kind of power plants of not over 3,000 cubic inch piston displacement. Boats must not be less than 32 feet in length and must exhaust at the stern. Three 50-mile heats, without repairs or adjustments will decide the contest. This new event, together with the stock marine engine race for the Fisher Trophy, will do more to develop and produce a healthy runabout than anything so far suggested in the history of the sport or industry.

MOTOR BOAT BUSINESS HAS NOT SLOWED UP

There is no slackening of activity in the marine industry, neither is there likely to be any. There was no wildcat growth in the engine and boat manufacturing business during the period of strenuous industrial expansion of the last few years, therefore there is no dead wood to be thrown overboard at the present time. If a few other industries report a scarcity of orders and little buying at the present time a similar condition is not true in the marine field.

All of the reliable and well-established boat-building companies are well stocked with orders for 1921. The Consolidated Shipbuilding Corp., the Great Lakes Boat Building Corp., the Purdy Boat Co., the Albany Boat Corp., the Burger Boat Co., the Hacker Boat Co. and several others are working with full forces at this time of the year, which is generally considered the slackest period of

PROSPERITY STILL PREVAILS

NO SLACKENING OF ACTIVITY—PRESENT PRICES IN MARINE FIELD ARE FAIR—NEW RACE ALONG SAME LINES AS THOSE FOR FISHER TROPHY—BUFFALO COMES TO FRONT IN RACING—NOW IS THE TIME TO PLACE ORDERS

the twelve months. William H. Hand, Jr., the naval architect of New Bedford, Mass., has designs for boats which will cost upward of \$300,000 on his boards. The same condition of prosperity is true with the engine manufacturers. Scripps, Van Blerck, Sterling, Clay, Frisbie, Hall-Scott and many others have plenty of orders ahead to justify the prophecy that next season will be very active.

PRICES ARE RIGHT

The present level of prices in this field is far below that in most others. Prices now are not very much higher than they were three or four years ago, although the cost of production has soared. Labor was never more expensive than it is today. It is not coming down. The cost of raw material has not been reduced. The engine manufacturers have big stocks of raw material either on hand or on order which were purchased at top-notch prices. The margin of profit on marine engine sales was always very small. Now is the time to place your order and to buy for next year.

BUFFALO NOW ON THE RACING MAP

The recent races of the Buffalo Launch Club were so successful and so well conducted that Buffalo deserves a prominent place on next year's schedule. The 1921 Fisher Trophy races were scheduled for Lake George but as the new hotel accommodations which it was expected would be ready have not materialized, it may be desirable to postpone the Lake George regatta until 1922, in which case the Fisher races should go to Buffalo. The course on the Niagara River is excellent. The club spirit is the best anywhere, and there are a lot of workers among the members of the Buffalo club who could be counted on to put the races across in a big way.



Photograph by Rosenfeld

DEEP SEA RACER AND CHASER

That the courageous spirit of the Northmen has not perished from the sea was strikingly illustrated when Shamrock IV met U.S.S.C. 100 in a chance encounter off Sandy Hook. Although neither is an ocean-going vessel in the strict sense of the term, one had crossed the Atlantic to pick up the gauntlet of a racing machine sailed in her home waters; and the other had crossed eastward and westward and given battle to submarines off the isles from whence Shamrock came. The English-speaking world unites in paying homage to these valiant instruments of peace and of war

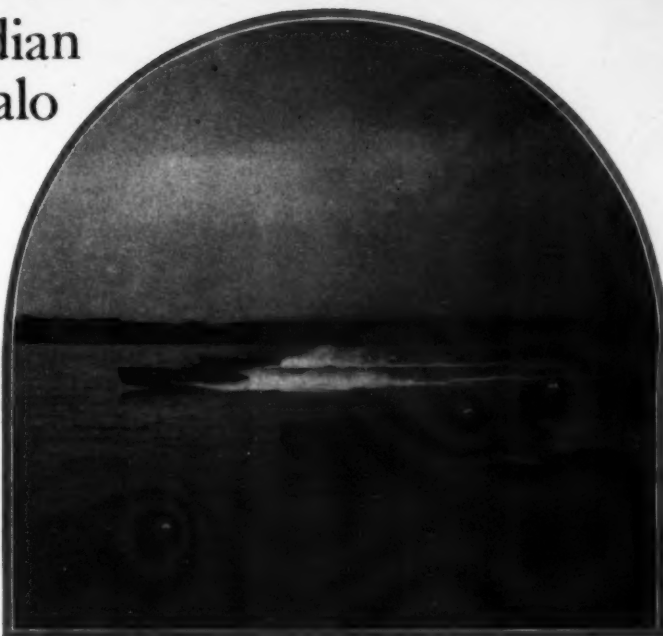
American and Canadian Boats Meet at Buffalo

A Revival of Racing on the Niagara River Which Brings Out an Excellent Field of Fast Runabouts

Photographs by M. Rosenfeld

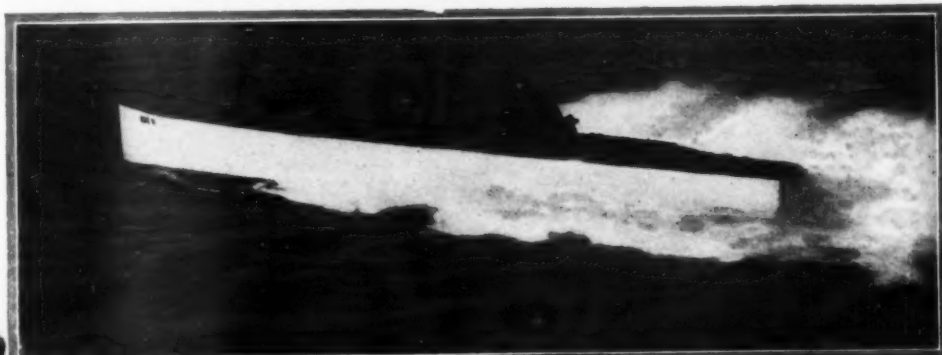
BUFFALO has once more gained a place in the racing universe. Not since 1913, during the days of the old Motor Boat Club of Buffalo, has there been any racing of consequence on the Niagara River until October 1, 2 and 3 of this year, when the Buffalo Launch Club stepped into the breach and held a series of races which for their class have not been bettered anywhere. The fastest runabout from Canada met the best in the United States and the title which has so long been in doubt was finally settled.

Commodore Ralph Sidway of the Buffalo Launch Club was in charge of the regatta. He was ably assisted by Commodore Edward N. Smith of the Buffalo Yacht Club, vice-president of the American Power-Boat Association. The race committee consisted of Harry Elliot, chairman; Arthur Utz, and Harry Wetherald. Guy Vaughan of Detroit, W. C. Morehead of Mil-



Start of the hydroplane race. Miss Peerless, Miss Toronto and Miss New Orleans

Miss Nassau, fastest displacement runabout in the world. Speed, 50 miles per hour



President Crique, of the Sterling Engine Co., and Vice Commodore H. Birge of the Buffalo Launch Club

waukee, W. B. Young of New York, "Gink" Dogerty of New Orleans and Frank Watles of Buffalo acted as judges. Gerald T. White of New York acted as scorer. American Power-Boat Association rules prevailed and several officers of that Association including Vice-President G. A. Wood, were present.

Classes were scheduled for 6-cylinder runabouts, 12-cylinder runabouts and single-screw hydroplanes. Other than these there were no restrictions. The selection of these classes was a logical one and proved very popular.

In the class for 6-cylinder runabouts were entered Brush By, owned by J. B. Sullivan of Montclair, N. J., champion of St. Lawrence; Leopard V, owned by G. B. Clark of Toronto and champion in her class in Canada; Over the Top, owned by Vice-Commodore Birge of Buffalo, and Belle Isle Bear Cat, owned by E. N. Gregory of Detroit. All boats were powered with Hall-Scott marine motors. All except Bear Cat had 6-cylinder Hall-Scotts. Bear Cat had a 4-cylinder motor of the same make.

For this class, three heats of 20 miles each were scheduled. All boats except Over the Top, which could not start in the first heat owing to a broken steering gear, started and finished all heats. No engine trouble of any kind was experienced by any of the boats during the 60 miles of racing.

Brush By won each heat without being greatly pushed, her speed for the 60 miles being 33.6 miles per hour. Her best 20-mile heat was made at the rate of 34.9 miles per hour. Leopard V took second place, Bear Cat third, and



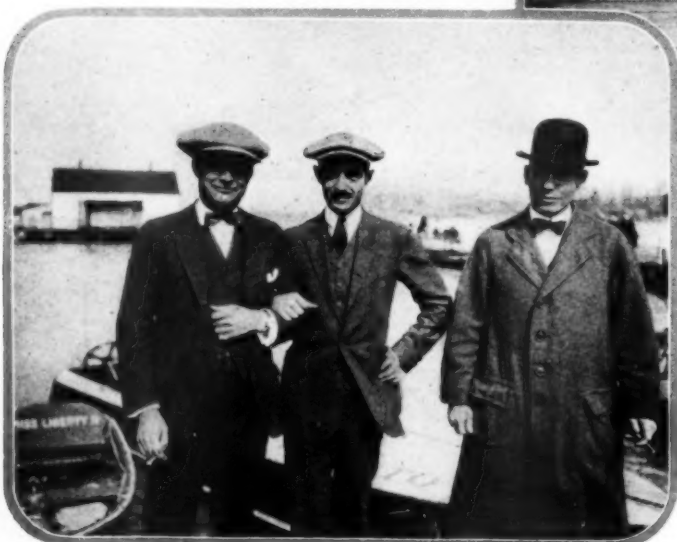
Mystic, the mystic hydroplane entered by the Thousand Island Yacht Club, which sank before the races

Over the Top, owing to the fact that she did not start in the first heat, was fourth. However, Over the Top finished third in the second heat and second in the last heat.

The race for 12-cylinder runabouts was a dandy. It was anybody's race from the start to the finish of each of the three heats. All the boats were powered with Smith twin sixes and all came through with perfect scores. Entered were Miss Nassau, owned by C. B. Johnston of Cleveland, flying the flag of the Motor Boat Club of America; Sure Cure, owned by Paul Strasburg of Detroit; Helden II, owned by Fred R. Miller of Toronto, and Clarie II, owned by



At the pier of the Buffalo Launch Club



Guy W. Vaughan of Van Blerck, "Gink" Doherty of New Orleans, and W. C. Morehead of the Great Lakes Boat Building Corp., served as judges

Alfred Rogers of Toronto. All were real boats in every way and not racing machines.

The race consisted of three heats, two of 30 miles each and one of 20 miles. Miss Nassau won 3 firsts, although Sure Cure pressed her so hard that she had to let out every last ounce of speed she had to keep ahead. On several occasions Sure Cure went into the lead, but was not able to hold it to the finish line. Miss Nassau's speed for the 80 miles was at the rate of 46 miles per hour. Her best speed for a complete heat was made in the last when she averaged 48.8 miles per hour for the 20 miles, a new world's record for runabouts.

Sure Cure took three second places, Helden II was third on each occasion and



Start of the race for runabouts which established a new world's record of 48.8 miles per hour for 20 miles. Sure Cure is in the foreground. Miss Nassau, Helena II and Clarie are in order named



Over the Top, powered with a Hall-Scott motor. She is owned by Commodore Birge

Fred Miller's Hel-dena II, a 45-mile 45-footer



The racing drivers

Clarie II, owned by Alfred Rogers of Toronto



Clarie II last. However, so close were all the finishes that no one was sure of the winner until the checkered flag dropped.

The race for hydroplanes was not as great a success as the others. The weather was bad, so the heats for the planes had to be postponed and postponed. To add to the troubles, Arab V, Commodore Sidway's new plane, went to the bottom on a tryout. Hardly had she sunk

when Mistiyc the new hydroplane of the Thousand Island Yacht Club, was brought out on the river for a trial. She ran up and down the river a few times and then she went down to Davy Jones' locker also.

The sinking of Arab V and Mistiyc left only Miss Toronto II, Miss New Orleans and Miss Peerless. It was decided by the owners to take no further chances with this unreliable type of boat until water conditions were better. Consequently the race was reduced from 3 heats of 30 miles each to one of that length.

About dusk on the third day the owners decided that the river was smooth enough to risk their craft, so the three surviving planes came out. The start was of the horse-race type. Miss Peerless with Ed Grimm at the wheel had the pole, Miss New Orleans, steered by Paul Strasburg, had the center position, and Miss Toronto, in charge of Mr. Ericson, was on the outside.

The three boats went over the line together at the crack
(Continued on page 64)

One-Thirty

The Latest Product of the Consolidated Yard Is a Most Attractive Cruiser



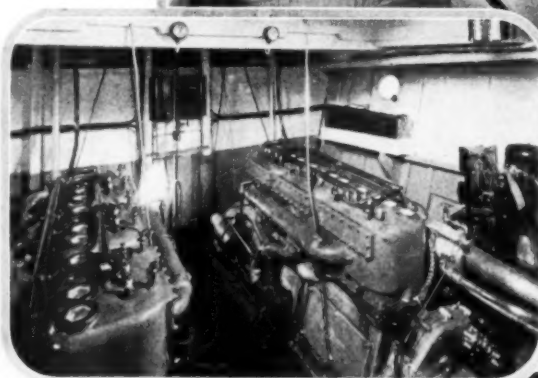
ONE-THIRTY, an attractive 60-foot express cruiser, was delivered recently by the Consolidated Shipbuilding Corp., formerly the Gas Engine & Power Co. and Charles L. Seabury & Co., Cons., of Morris Heights, N. Y. This new cruiser was designed and built for Leon Goodman, of Philadelphia, Pa., and embodies all the refinements of a larger craft. The owner has a private stateroom aft, with toilet room forward on the port side with shower bath room on the starboard side. The dining saloon is a large, roomy compartment fitted with folding mahogany table, built-in extension berths used for seats, buffet, lockers, etc. Next forward, the galley is arranged, running full width of the ship, fitted with all the necessary appurtenances. A door on the port side forward leads to the engine-room in which two six-cylinder, 5 $\frac{3}{4}$ x7-inch Model M Speedway motors are located with exhausts leading through transom stern, electric water pumps and Delco electric light set are also installed in this compartment. Forward, the crew's quarters are arranged, fitted in the usual yacht style.

The deckhouse forward is one of the commanding features of this cruiser. Three large windows on either side are arranged to drop into pockets, the two forward ones may be swung out to form visor. The steering wheel, engine controls, reverse levers, tachometers, chart frame and binnacle are arranged forward. An athwartship seat is arranged aft, with door leading to the main deck on either side.

The after deck is another added feature. Here three to five large wicker chairs may be installed. A 12-foot rowing dinghy is carried in removable chocks on cabin roof. A khaki awning extends over main deck, the after end of which is portable.

The upholstery throughout the boat has been well selected, and the interior as well as the exterior finish emphasizes the craftsmanship of the builders.

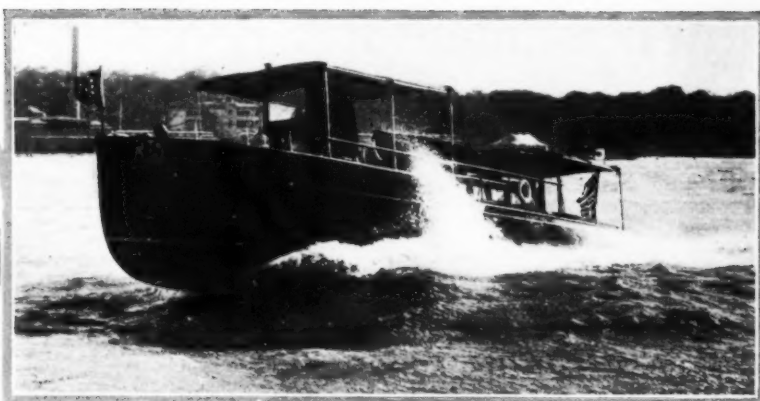
There is nothing lacking in the owner's stateroom aft



A pair of six-cylinder Model M Speedway motors furnish the power

Windows in the deckhouse forward are arranged to open and afford free air circulation





Betty M winning

Commodore Charles W. Kotcher, owner of Betty M, getting his time from the Committee boat before starting his match race with Olalen. The American Power-Boat Association flag is flying from the jack-staff

Photographs by M. Rosenfeld

Detroit Express Cruiser Championship Decided

In Final Race of Season Betty M Shows Better Speed in Lake St. Clair Race

ALTHOUGH Detroit is generally thought of as the home of the high-speed, high-powered racing hydroplane, yet much keen rivalry exists among the owners of other types of boats as to the speed supremacy of the motor-boat city. In the displacement boat class undoubtedly Paul Strassberger's Sure Cure is champion, as she has been unbeaten this year by any craft hailing from Detroit.

The question of who owns the fastest express cruiser has been a much-debated and to some extent a much-abused subject during the past summer. The question of what is an express cruiser of course is always raised in a discussion like this. Some believe that any type of hull, pro-

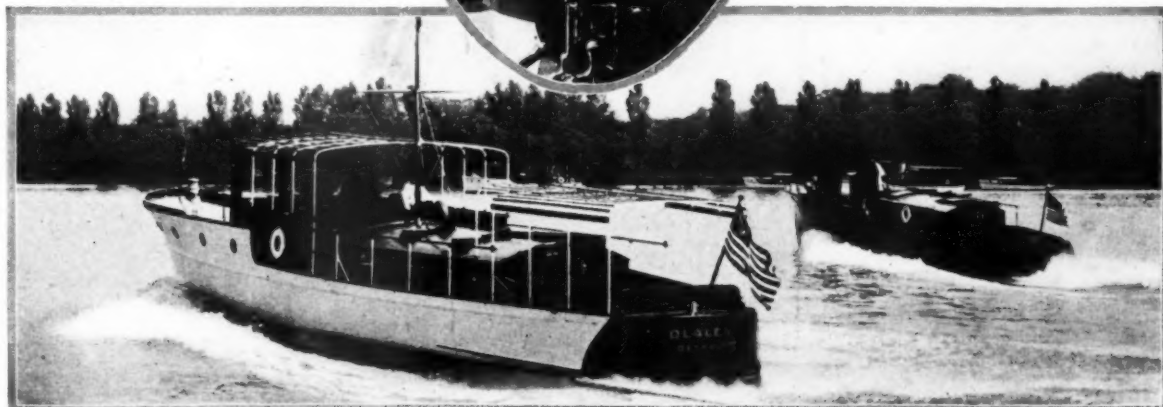
vided it has a shelter to crawl into, a place to sleep and the essential stove and compass stowed somewhere below decks should be classed as an express cruiser. The owner of a runabout hull with the proper awning and topsides of beaver-board claims recognition. The day boat or glass cabin cruiser somewhat modified and improved from the old type with which we are all familiar, believes that he has a legitimate type of express cruiser and should be allowed to compete in races for these boats.

We grant that the qualifications for cruising differ in different localities and therefore a type of express cruiser admirably suited in one section of the country would hardly fill the bill in
(Continued on page 47)

Commodore L. A. Young at the wheel of his Great Lakes cruiser Olalen, one of the aspirants for the Detroit Championship



Start of the match race between Olalen and Betty M. Each boat is powered with a pair of Van Blerck motors



When the Motor Boatmen and Industry Play

Scenes at Some of the Recent Motor Boat Race Meets Which Indicate the General Interest Manifested by All in the Season's Activities

Photographs by M. Rosenfeld



Gar Wood, owner of Miss America, just after he had established a new one mile record of 76.66 miles per hour, came ashore to see how the timing was done



Guy Vaughan, general manager of the Van Blerck Motor Co., and W. C. Morehead, president of the Great Lakes Boat Building Corp., team up as the crew of a cat-boat in a race from which real sailors were barred



C. B. Johnston, owner of Miss Nassau, the fastest displacement runabout in the world. Speed 50 miles per hour

Chris Smith, the hydroplane builder and Commodore Parsons of Cleveland, try their hand at sailing. Chris needs more practice if he is to be a world winner as he is in motor boating

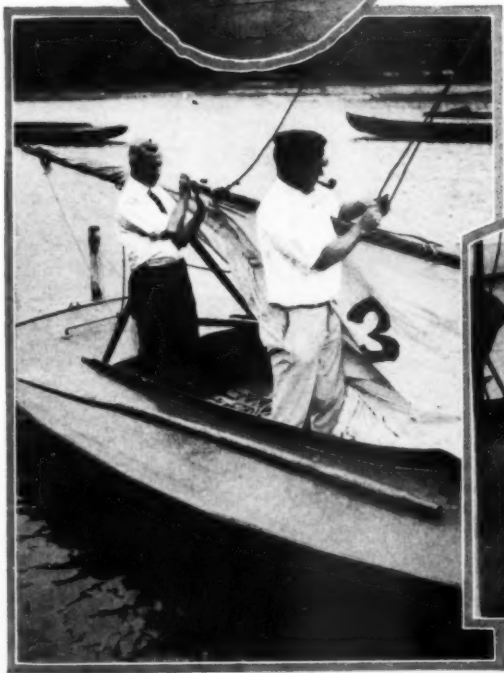
Wilbur Young, vice-president of the Columbian Bronze Corp. and William E. Gibb, vice-president of the Frisbie Motor Co., officiating at the Gold Cup Races



Arthur Utz of the Hall-Scott Motor Co., explains to Henry Ford why Hall-Scott motors win. Both Mr. Ford and his son, Edsel, own boats powered with Hall-Scott marine motors.



Reading one's racing instructions is important. Jay Smith and Gar Wood never leave anything undone



Fred Lord and Harry Sampson make ready for a race. Fred lost the race and Harry a tooth



Officials aboard a Great Lakes cruiser cheering Bill Morehead, the owner and host to visiting motor boatmen during the recent races. Mr. Morehead will be seen on the extreme left

Fast Time Made Via Sea Sled

Eight Hundred-Mile Trip of Boeing Sea Sled
Demonstrates its Practicability for Rough Sea Travel

ALL boat records between Seattle and Victoria and Vancouver have been broken this past summer.

Running through heavy seas and under unfavorable weather conditions, the first long-run test of the new Boeing sea sled was completed after a week's test cruise in Puget Sound and Canadian waters. The results obtained from the trial trip demonstrated the ability of the sled to stand up under heavy work, and the maintained speed of the sled is shown by the fact that all existing records for water travel between Seattle and Canadian ports were broken.

The sea sled left Seattle with H. C. Berg, sales manager of the Boeing Airplane Company; Merrill Mus-



Under actual working conditions the Sea Sled is capable of maintaining a high rate of speed



Sea Sled hulls can be fitted with all the comforts of the more conventional runabouts, including the folding top

grave, pilot; Geo. Pocock, in charge of sea sled construction, and Capt. A. Hume, of the yacht Taconite, as passengers. The purpose of the trip was to demonstrate the possibilities of the sled under actual working conditions and to exhibit the sled to the British Columbia aquatic experts who had evinced interest in the new speed craft.

Leaving Seattle at noon, the sea sled made Port Townsend in one hour, from there to Active Pass in one hour and fifty-five minutes, and from the Pass to Vancouver in one hour and ten minutes, making the total time for the run from Seattle to Vancouver four hours. The sled remained at Vancouver for nearly a week, giving speed demonstrations to hundreds of Vancouverites in the open waters of the Straits where rough water was encountered practically all of the time.

The sea sled left Vancouver for Victoria one hour after

the Princess Charlotte and overhauled the fast Canadian Pacific steamer less than half way. From Active Pass to Victoria, the sled ran into a stiff southwester but maintained its speed and made the trip between the two British Columbia cities in three hours, which included two short stops.

The demonstrations were continued in Victoria. The sea sled showed its speed in a run down the Straits to meet the steamship Empress of Russia, one of the fastest trans-pacific steamers, in the open sea. She circled the big liner several times while the latter was going full speed and then scooted back to Victoria.

The party left Victoria at noon for the return trip to Seattle and made the run in one hour and fifty-five minutes, passing the Canadian Pacific and Grand Trunk steamers which had left long before. The time made by the passenger steamers averages four and one-half hours.

The trip altogether covered 750 to 800 miles, a considerable portion of which was in heavy tide runs which at times were higher than the sea sled itself. That the sled is not a plaything was shown when as high as twelve persons were on the boat at one time, showing its passenger-carrying quality.

The Boeing officials state that not one case of engine trouble developed on the test trip and are enthusiastic over the showing of the two Hall-Scott marine



When at rest the trim of the Sea Sled is practically the same as when under way, the planing is not so pronounced

engines installed in the sled. These engines develop 200 horsepower each and operate a pair of surface propellers. Speeds of 35 m.p.h are easily obtainable and can be maintained continuously without the slightest difficulty. The regularity and consistency possible with this type of boat has not been attained by any other form of water transportation.

Ed went out and
picked up the Black
Boy which he had
just shot



Let's Get a Few Ducks

The Elusive Duck is Hard to Get Unless One Has
the Proper Outfit—A Small Motor Boat is Valuable
in Getting To and From the Blinds Rapidly



By F. E. Brimmer

BILL BARTON comes to see me only about once in twelve months and sometimes it is twenty-four. When he does arrive it is with the notice of about five hours that I have to get ready to receive, entertain and keep him generally busy. Sometimes he gives me only five minutes' warning before he lands at my front door, and then it is a real big brow-wrinkler to decide what is the proper line of operation. One thing is sure and that is that I haven't got to take Bill to the show, he would just naturally fill up and suffocate if he was confined into any such close quarters on any fall evening of any year. And Bill never did take to society and the D. S. More than that, he is a dyed-in-skin hunter that clamps his fist in the middle of your back and yells for you to get him out into the woods or on the water. He just fishes and hunts like a bossy takes to his mammy's milk factory, and Bill is a 101% good companion and hunting pal. He's a Prince!

I am always glad if Bill can manipulate the wires of his business so he can arrive before the lake is frozen over. In that case the task is a simple one, because the Prince can be taken over to Oneida, that biggest and best lake in New York State, and be re-introduced to the society of duckdoms that live or fly over that body of water. So when he arrived in decent season on his last trip through the Saline City it was with a good deal of warmth that I grasped his hand and the next thing the Prince said after the greeting was that simple and charmed word of four letters—d-u-c-k! From one source or another he had heard in his far-western travels that this year, above all others, the ducks were being dropped by the wholesale on Lake Oneida. Were they? Well, I couldn't tell him much about it, because I had been on a big-game hunting trip myself and hadn't been after the quacks. But all the same I was ready, waiting, willing and eager to go and see.

So we packed up the decoys in the pack-basket and pulled out the rubber boots and the ammunition. There was next a message sped over the wire to Ed Pierce, that ace of duck guides on the west end of Oneida. Then lunch was prepared by the women-folks, while we spent the evening swapping the experiences that came vividly to mind of the happenings of high importance that had transpired during the long interval since we last met at the call of the hunt. Bill and I had been boyhood chums and a close corporation all in one, but when the years began to pile up behind us there wasn't much chance to get together, only when Bill could get off the road and land on me like a bolt from the blue. I'm not sure but that's the best way to have it, anyhow, because you are spared the suspense and trials of watchful waiting upon the calendar for the far-appointed day to arrive in the case of a long-planned hunt. With Bill's style every outing comes like a surprise party of a seventeen-year-old lassie.

The women warned us of bedtime, and we hardly heeded them enough to be civil. That's probably the reason they maintain



A cloud of Redheads drifted out of the marsh like confetti sprinkled against the morning sky

that we men are a couple of loose nuts that ought to be tightened up with our connections and things about us in general. Those fair halves, and Bill always brings his wife along, maintain, furthermore, that when we two get together that we are two of the smallest boys that ever chattered about air rifles, skates and sleds. Be that as it may, I know we have some rip-roaring good times once in a while. The women say the hunting bug is a case of diseased mind, a thing that comes on to the individual like a stroke and from which they never recover, a symptom of lunacy, a condition of weakened mind and softening of the brain. But the Prince and I just smile when those girls talk. You know how women are!

Finally we did get over the conference and pulled the blankets up to our necks. I dreamed that a big Mallard came flying right over my bed with a cloth hanging from his bill, like those pictures of the Stork and the babe you know, but in his cloth this Duck carried not a youngster but an alarm clock. Then I rubbed my eyes and just believe me that alarm clock I had put under the head of the bed was working his speediest. There was no shirking about him and it took about five minutes for me to find the stopper and shut the thing down. At that the Good Rib woke up and growled a little because of her broken slumbers. Mine were busted, too, but I didn't mind as soon as I got half dressed and had the coffee pot sizzling and the aroma of the bean floating through the house. Bill was on deck when I set the cooking on the table and the ceremony of breakfast was short as the tail of a bunny. Then we piled things into the car and hit it in high for Brewerton-on-Oneida.

The wind was rustling things in the dim morning light and the roosters welcomed us as we sped past the farmhouses along the way. Bill got wide awake enough to make his calculations and discovered that the wind was just right—from the north-east. In thirty minutes we



The motor boat was made ready during the night for an early start

pulled into the yard of that good lakeman, William Schafer, whose son-in-law was to guide us. There was a welcome light in the Schafer kitchen, proving to us that the men had been on the job getting the motor boat ready during the night, catching the live decoys, and in every way making things ship-shape for the trip. Down by the boathouse there was a bobbing lantern visible and we found the man behind the light was none other than Ed Pierce. Even in the dim light you could get his persevering smile. Schafer himself came down to the dock to warn us not to drop too many Ducks into the lake and to give us advice on how to hold to hit. All of which was seasoned with a good deal of audible grinning and the target for our replies. Schafer was all the better to advise us how to shoot because he never pulled a trigger in his life. But he is the best fisherman along the west half of Oneida and when he can't get the pike or the bass to boat, then they will not bite for the red god himself. Ed Pierce is the shooter and so the two run the boat livery at Brewerton, taking care of the clubs and the individual hunters as though each and every man was the Prince of Wales.

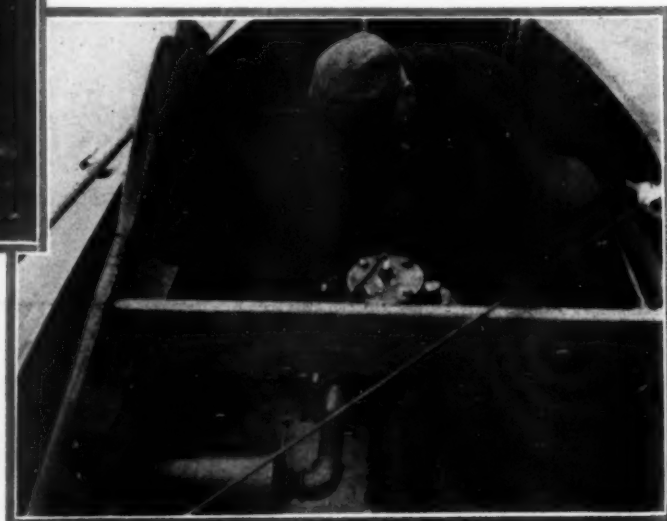
Ed hooked a little rowboat by the pull string to the rear of the motor and into this we piled our duffle. Then we sent the last thrust at good old man Schafer and putty-putted out into the darkness of five o'clock in late November. Of course, Ducking from the motor boat is illegal, that is, to do any shooting, but all the same when you have many miles of water to put behind your stern it

(Continued on page 48)



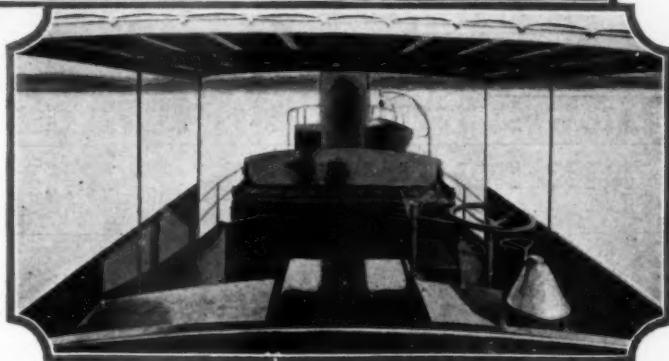
Some nice fat trophies to show for all the noise

The motor boat was handy to move over to the other side of the lake when the wind shifted





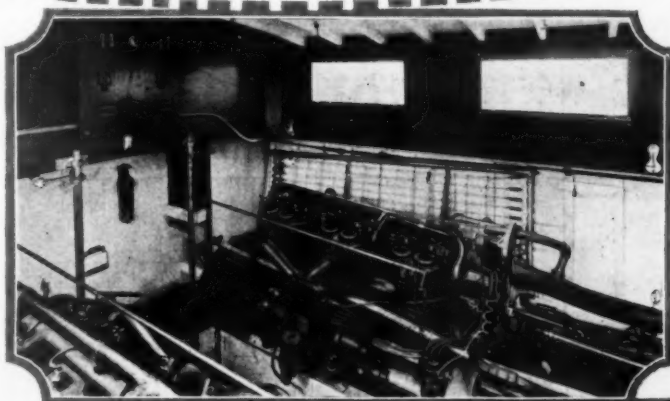
Owaissa has a clean wake when travelling fast. All wash and spray are thrown well clear of the hull and the boat is dry as a result



The deck space is roomy and well protected. All controls are brought to the bridge and the boat is handled from there

Owaissa

One of the Most Successful Hand Designed Cruisers To Be Built During This Season



A pair of six-cylinder Van Blerck motors are used and drive the boat at 28 m.p.h. These are installed in a roomy engine compartment amidships where they are readily accessible

Owaissa is going to make the journey to Florida this winter along with the other new ones

OWAISSA represents one of the most successful express cruisers of the season.

Designed by William H. Hand, Jr., and built by Fred S. Nock of East Greenwich, Conn., Owaissa is a 48-ft. by 10-ft. 6-inch by 3-ft. cruiser, powered with a pair of 6-cylinder, Model M-6 Van Blerck engines, which give the boat a speed of 28 m.p.h.

Owaissa was designed and built for off-shore cruising, and is owned by R. E. Paine of Boston, who uses her at Wiano, Mass., in the summertime and plans to take her to Florida this coming winter.

The accommodations include a large cabin ahead of the bridge deck, the engine room beneath—followed by the owner's stateroom and a roomy cockpit.



Winners of American Power-Boat Association Sanctioned Races During 1920

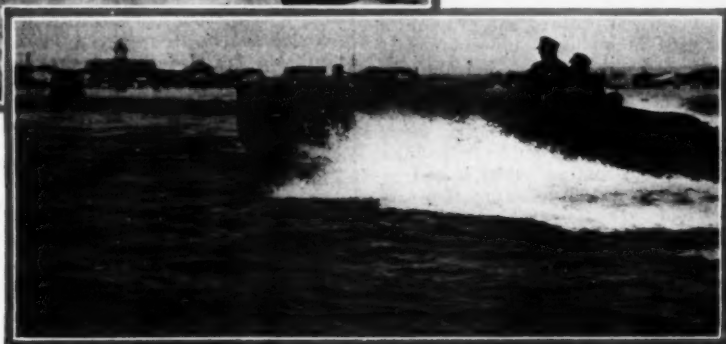
The season just closing has been marked by an unusual activity in motor boat racing and indicates the healthy condition of the sport. Never before have there been so many successful racing events crowded into one summer. Never before have there been so many competitors to each event. A complete summary of winners of all races sanctioned under the rules of the American Power-Boat Association during the past season is given below. This table has been compiled with the assistance and counsel of officials of the American Power-Boat Association and is complete and authoritative in every way. Editor.

Boat	Rating	Belonging to	Club	Race Held By	On	Course Miles	Elapsed Time	Speed S. M. P. H.	Number of Competitors	Title Won
Thetis.....	39-55	A. G. Hauver.....	New York Motor Boat Club.....	Columbia Yacht Club.....	June 26.....	10	0:59:53	10.08	6	
Amoris.....	65-03	W. T. Randolph.....	New York Motor Boat Club.....	Columbia Yacht Club.....	June 26.....	10	0:31:50	19.15	3	
Miss Nassau.....		C. B. Johnston.....	Motor Boat Club of America.....	Miami Beach Yacht Club.....	March 6.....	Six 1-mile dashes		44.3		One-Mile Speed Cruiser Championship.
Gar, Jr.....		G. A. Wood.....	Detroit Yacht Club.....	Miami Beach Yacht Club.....	March 6.....	Six 1-mile dashes	1:38	36.6		One-Mile Express Cruiser Championship.
Hoosier V.....		H. R. Duckwall.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 6.....	Six 1-mile dashes	1:44	34.32		Two-Mile Displacement Racer Championship.
Miss Nassau.....		C. B. Johnston.....	Motor Boat Club of America.....	Miami Beach Yacht Club.....	March 6.....	2 S*	2:47	43.1		
We We.....		Webb Jay.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 6.....	2 S*	3:26	36.0		
Gar, Jr.....		G. A. Wood.....	Detroit Yacht Club.....	Miami Beach Yacht Club.....	March 6.....	2 S*	3:39	34.45		Two-Mile Speed Cruiser Championship.
Hoosier V.....		H. R. Duckwall.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	February 14.....	113 S*	3:55:53	28.7	4	Miami to Bimini and return.
Hoosier V.....		H. R. Duckwall.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 13.....	138 S*	5:16:51	29.02	3	Miami to Key West.
Hoosier V.....		H. R. Duckwall.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	February 21.....	138 S*	5:08:32	26.8	4	Miami to Palm Beach and return.
Shadow V.....		Carl G. Fisher.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	February 28.....	138 S*	6:00:00	26.3	4	Miami to Key West.
Hoosier V.....		H. R. Duckwall.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 5.....	10 S*	19:08	31.3	4	
Gar, Jr.....		G. A. Wood.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 6.....	20 S*	37:35	31.95	4	Miami to Bimini and return.
Hoosier V.....		H. R. Duckwall.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 10.....	109 S*	4:42:30	23.2	3	Miami to Palm Beach and return.
Altonia.....		A. C. Newby.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 10.....	138 S*	4:56:00	28.0	3	
Hoosier V.....		H. R. Duckwall.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 17.....	10 S*	10:55	30.1	3	
Hoosier V.....		H. R. Duckwall.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 18.....	20 S*	38:01	31.4	3	
Miss Nassau.....		C. B. Johnston.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 5.....	10 S*	15:45	38.1	4	Ten-Mile Displacement Racer Championship.
'N'Everthin.....		W. Kemp.....	Miami Beach Yacht Club.....	Miami Beach Yacht Club.....	March 6.....	20 S*	34:14	35.1	4	Twenty-Mile Displacement Racer Championship.
Gardena.....	37-62	H. Anderson.....	New York Athletic Club.....	New York Athletic Club.....	July 10.....	100 N*	10:45:00	10.7	6	Hdcp. Cruiser Championship of L. I. Sound, Class A.
Victory II.....	34-95	H. A. Jackson.....	New York Athletic Club.....	New York Athletic Club.....	July 10.....	100 N*	11:45:28	9.8	6	Hdcp. Cruiser Championship of L. I. Sound, Class B.
Miss America.....		G. A. Jackson.....	New York Athletic Club.....	New York Athletic Club.....	August 14.....	48.5 N*	5:31:50	10.1	19	Handicap Cruiser Championship of America.
Miss America.....		G. A. Wood.....	Detroit Yacht Club.....	Detroit Yacht Club.....	Sept. 11-13-14.....	90 S*	1:27:27	62.0	5	A. P. B. A. Championship of America.
Miss Nassau.....		C. B. Johnston.....	Detroit Yacht Club.....	Detroit Yacht Club.....	Sept. 15.....	Six 1-mile dashes	70:055	49.25	2	A. P. B. A. One-Mile Championship of America.
Betty M.....		C. W. Kotcher.....	Detroit Yacht Club.....	Detroit Yacht Club.....	Sept. 15.....	Six 1-mile dashes	49:45	49.25	1	One-Mile Displacement Racer Championship.
Gar, Jr. II.....		G. A. Wood.....	Detroit Yacht Club.....	Detroit Yacht Club.....	Sept. 11-12.....	85	2:00:46	42.5	3	
Miss Toronto II.....		Toronto M. B. Club.....	Toronto Motor Boat Club.....	Toronto Motor Boat Club.....	Sept. 2-8.....	Four 1-mile dashes	65.1	65.1	1	International Displacement Gold Challenge Cup.
Heldena II.....		F. R. Miller.....	Toronto Motor Boat Club.....	Toronto Motor Boat Club.....	Sept. 2-8.....	90 S*	2:26:71	30.7	3	Canadian National Exhibition Cup.
Heldena II.....		F. R. Miller.....	Toronto Motor Boat Club.....	Toronto Motor Boat Club.....	Sept. 2-8.....	60 S*	1:38:50	36.7	3	Canadian International Gold Challenge Trophy.
Miss Toronto II.....		Toronto M. B. Club.....	Toronto Motor Boat Club.....	Toronto Motor Boat Club.....	Sept. 2-8.....	45 S*	1:09:42	38.9	2	Displacement Racer Championship of St. Lawrence Rvr.
Brush By.....		J. B. Sullivan.....	Thousand Islands Yacht Club.....	Thousand Islands Yacht Club.....	Aug. 25-26.....	39 1/2	1:03:22	37.1	4	Hydroplane Racer Championship of St. Lawrence Rvr.
Miss Toronto II.....		Toronto M. B. Club.....	Toronto Motor Boat Club.....	Toronto Motor Boat Club.....	Aug. 25-26.....	59 1/2	1:04:45	55.0	4	
Kodak.....	33-73	R. J. Haslinger.....	Hudson River Yacht Club.....	Hudson River Yacht Club.....	Sept. 12.....	90 S*	4:55:20	10.2	8	
Kodak.....	33-73	R. J. Haslinger.....	Hudson River Yacht Club.....	Hudson River Yacht Club.....	Sept. 12.....	90 S*	5:01:18	10.3	14	N. Y. Bay Championship, Class A.
Champ.....	37-41	W. Bond.....	Tamaqua Yacht Club.....	Tamaqua Yacht Club.....	Sept. 10.....	45 N*	5:53:17	8.8	10	N. Y. Bay Championship, Class B.
Falcon.....	34-02	P. W. Johns.....	Hudson River Yacht Club.....	Tamaqua Yacht Club.....	Sept. 10.....	45 N*	4:04:30	36.7	6	A. P. B. A. Displacement Racer Championship (Fisher Trophy).
Rainbow.....		H. B. Greening.....	Royal Hamilton Yacht Club.....	Detroit Yacht Club.....	Sept. 11-13-14.....	130 S*				
Lidwina III.....		S. B. Egan.....	Buffalo Launch Club.....	Detroit Yacht Club.....	Sept. 11-12-13.....	67 1/2 S*	4:39:59	14.5	12	
Brush By.....		J. B. Sullivan.....	Thousand Islands Yacht Club.....	Buffalo Launch Club.....	Oct. 2-3.....	60 S*	1:51:42	32.2	4	
Miss Nassau.....		C. B. Johnston.....	Motor Boat Club of America.....	Buffalo Launch Club.....	Oct. 2-3.....	80 S*	1:44:35	46.0	4	
Miss Toronto II.....		Toronto M. B. Club.....	Toronto Motor Boat Club.....	Buffalo Launch Club.....	Oct. 3.....	30 S*	0:34:38	52.0	3	



The committee which conducted the Labor Day races at Los Angeles. Left to right: C. Friedman, Frank Smith, Vice-Comm. C. G. Putnam, Comm. A. H. Wilson and G. E. Vibert

Miss Los Angeles, the fast runabout owned and operated by Dustin Farnum



California Going In for Runabouts

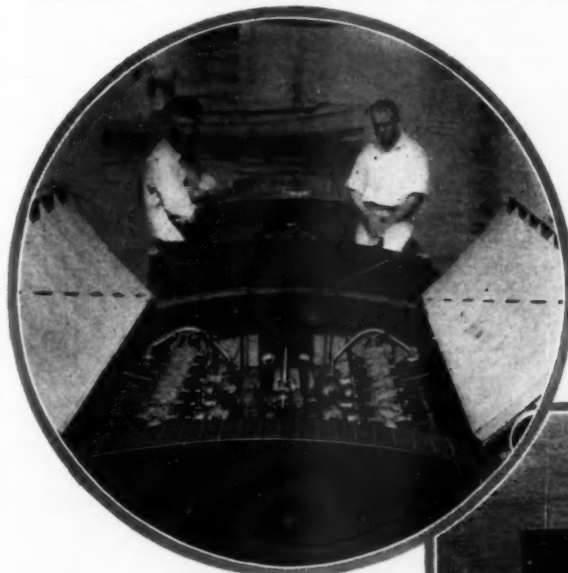
Interesting Races at Los Angeles Bring Out Some New Fast Boats and Furnish Keen Competition

RESULTS of the season's racing at Los Angeles show that the motor boat germ has been instilled in many prominent west coast sportsmen. New boats have

been built and the rivalry for speed honors is keen. Hurricane, a Hacker-designed runabout, was built for W. W. Padden and equipped with a pair of 6-cylinder Hall-Scott motors. She is to be entered in several of the races still to run and has made up to 45 m.p.h. in trials. Better speeds are expected later when she is finally tuned up.

In races on Labor Day, in competition with Miss Los Angeles, owned by Dustin Farnum, Hurricane was credited with doing a four-mile lap of the course at the rate of 39.01 m.p.h. Miss Los Angeles did a bit better, 40.64 m.p.h. The averages for the 36-mile race were 36.85 m.p.h. for Hurricane and 33.8 m.p.h. for Miss Los Angeles.

A sixty-six-mile race around Catalina Island from San Pedro is expected to draw out all the speed demons on the coast. Frank Garbutt, who has held the trophy for some years, will be called upon to exert himself in order to win it again. Joe Fellows has challenged and has built a new hull powered with a big Sterling motor. Mystery V, Garbutt's racer, will not be the last boat in the race, however, as she has just been fitted with a pair of 400 h.p. Liberty type motors.



Hurricane, a new California runabout, with her builders, Wilson Bros., admiring the Hall-Scott motor installation

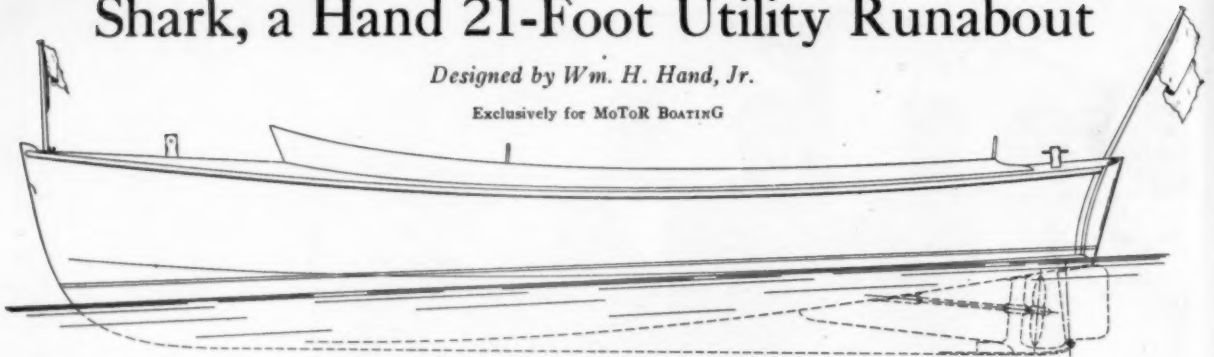
She is a duplicate of Comanche, the Hacker boat owned by E. Ford, of automobile fame



Shark, a Hand 21-Foot Utility Runabout

Designed by Wm. H. Hand, Jr.

Exclusively for MoToR BOATING



Outboard profile of Shark, a Hand all-purpose runabout

THE last runabout in the series of Hand plans published in MoToR BOATING is presented herewith. Only twenty-one feet long but combining in a small space all of the conveniences and utility of a larger boat. The arrangement is well planned and provides a pair of individual seats forward at the steering position. Additional seats in the after end of the cockpit will accommodate five or six more people and adapt the boat to ferry service and other utilitarian purposes. The motive power is one of the simple little 9 to 12 h.p. Universal motors. It is capable of driving this boat at a sufficiently rapid rate to comply with all reasonable requirements for speed. This boat is within the range of construction by the amateur builder and a brief description of the processes to be followed might be in order.

The first operation is as usual the drawing of the lines to full size. Stations are spaced 2 feet, 7½ inches apart and moulds should be made at each of these stations. The drawings show only one-half of the mould and it is, of course, necessary to complete both sides in order to get the full section at any point. The next job in order is

the keel. It is gotten out of a piece of white oak and moulded to the shape required by the drawings. The various moulds are erected along the keel in their proper positions and securely fastened and stayed.

The stem is cut from a piece of natural crook hackmatack and securely bolted to the keel member. The joints should be very carefully fitted so that there is no play whatever. The bevel and rabbet for the planking are cut on both the keel and stem. Prepare a fid to guide you for the proper depth of rabbet. Another hackmatack knee is used at the stern to take the transom. This is prepared from a double thickness of white cedar bent to shape and not exceeding ⅝ inches in total thickness.

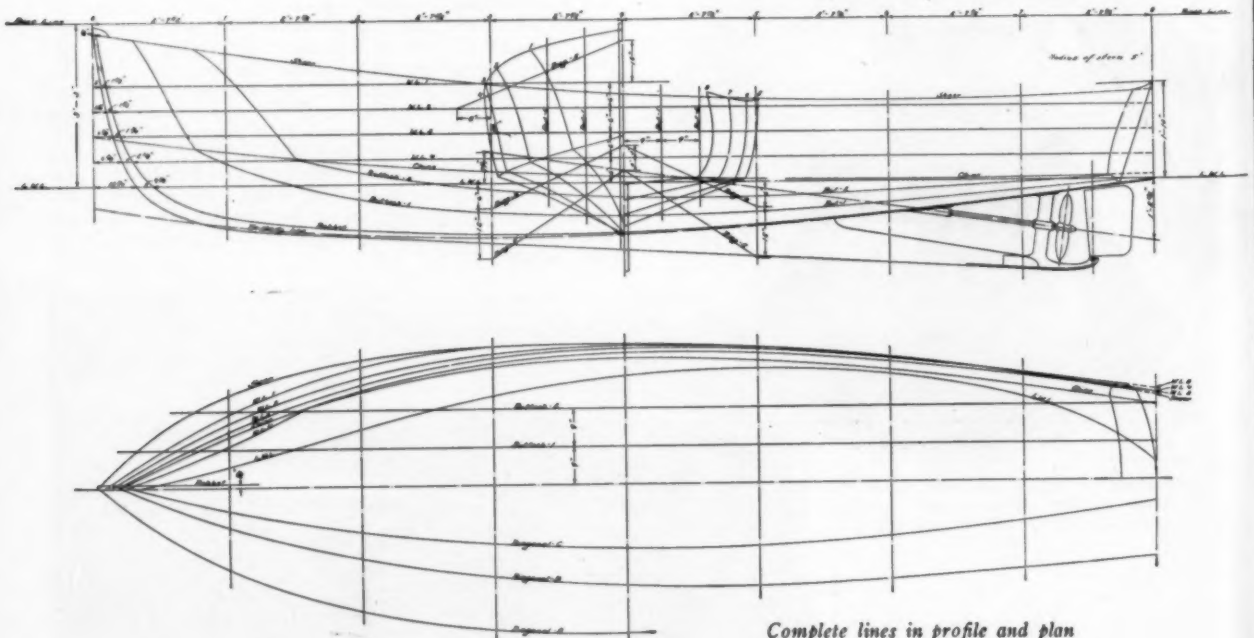
When all is in readiness for the beginning of the work the keel should be laid on a smooth floor and rigidly supported. The bottom of the keel is accurately located at the proper distances above the base line as determined by the table of offsets. The moulds are then placed and the transom can be added. It is essential that the moulds be erected absolutely plumb, and after they are in place the waterline should be carefully checked to see that they are all truly in

One desiring a smart little runabout suitable for use around the summer home, lake or camp, should find this design interesting.

The described motor, though small, will drive the boat at a good clip, and be very economical with the present high cost of gasoline.

The divided forward seats and auto steerer provide a convenience not usually found in a runabout of this type, and the cockpit provides ample room for ferrying to and from camp, fishing, or any use a small boat might be put to.

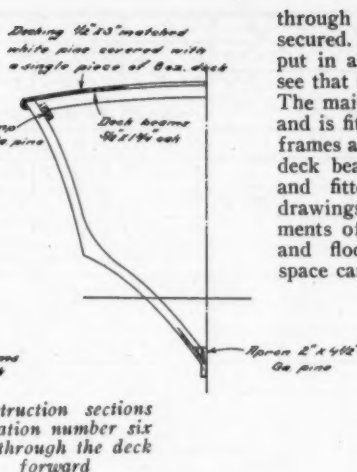
WM. H. HAND, JR.



Complete lines in profile and plan

line. Battens for the moulds are now applied and will outline the general shape of the boat. Frames are prepared for stem-bending and are applied as they come out of the steam box while hot. They are bent over the battens and clamped in place and will retain the shape of the moulds as they cool. It is best to work on both sides of the boat instead of finishing one side completely before the other side is started. The frames forward and aft can be twisted sufficiently so that they will fit close to the battens. The frames are then properly fastened and the next operation will be the planking. It is best to fit the garboard plank first and the others will follow in succession to the chine. White pine fillers are used at the chine to give the proper shape to the hull. All planking in a boat of this size can be applied in single lengths without the necessity of making any joints. Sheer planks can be applied next and the work proceeds toward the chine, finishing there. It will be necessary to take splings for the various planks by any of the methods commonly used so that the proper shape of planking may be cut. All planking should be fastened closely together so that they fit tight on the inside and have a split space between them on the outside. This is to provide

space for the caulking material to fill later. The engine bed is fitted next and is of a suitable size to carry the Universal motor specified. It is fastened to the frames with galvanized



Construction sections at station number six and through the deck forward

through bolts and must be well secured. Now is a good time to put in all the limber holes and see that they are not obstructed. The main clamp is applied next and is fitted to the inside of the frames along the sheer line. The deck beams are sawn to shape and fitted as shown on the drawings. They should be segments of a circle. The decking and flooring for the cockpit space can be added soon and the canvas covering for the deck applied when it is ready. The housing is built to fit around the motor and the drawings will give particulars about its size. All trim and finish are added as convenient and the cockpit seats, joiner-work, bulkheads and sheeting are carefully made and applied at the proper time. Complete specifications for all material required follow:

Plans and specifications of boats in this series printed previously include:

January—Edith, a 15-foot runabout
February—Jane, an 18-foot runabout
March—Katharine, a 30-foot cruiser
April—Dorothy, a 25-foot runabout
May—Zenith, a 25-foot cruiser
June—Cyclone, a 36-foot auxiliary
July—Eclipse, a 40-foot express cruiser
August—Margaret, a 28-foot cruiser
September—Tornado, a 45-foot auxiliary schooner
October—Broncho, a 29-foot cruising runabout

Specifications for V-Bottom Runabout Shark

Designed by
Wm. H. Hand, Jr., N.A.,
New Bedford, Mass.

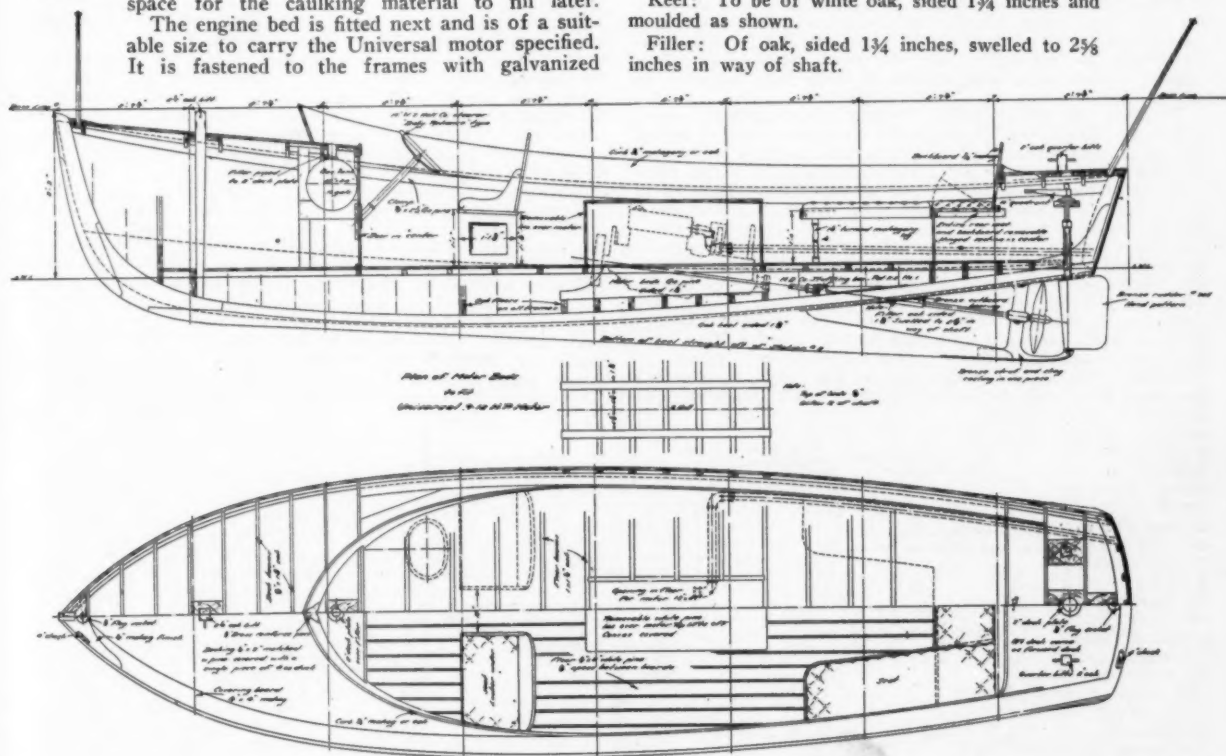
Dimensions

Length, overall, 21 feet; beam, extreme, 5 feet, 6 inches; draft, 1 foot, 9½ inches.

Materials: To be strictly first class in every respect, all fastenings to be secure and complete, all workmanship to be first class.

Keel: To be of white oak, sided 1¾ inches and moulded as shown.

Filler: Of oak, sided 1¾ inches, swelled to 2¾ inches in way of shaft.



Construction profile, deck and arrangement plans for Shark, a 21-foot Hand runabout

Stations	0	1	2	3	4	5	6	7	8
<i>Sheer</i>	0-2-4	0-7-2	0-11-6	1-3-2	1-5-6	1-7-0	1-7-4	1-7-0	1-5-3
<i>Chine</i>	2-3-1	2-7-1	2-10-1	3-0-2	3-1-3	3-2-2	3-2-4	3-2-3	3-1-6
<i>Buttock-2</i>		1-0-2	3-0-1	3-4-4	3-6-3	3-6-4	3-5-2	3-3-3	3-1-3
<i>Buttock-1</i>		2-9-6	3-6-6	3-10-0	3-10-6	3-10-0	3-8-0	3-5-2	3-2-4
<i>Rabbit</i>		3-10-5	4-1-7	4-3-1	4-2-7	4-1-2	3-10-4	3-7-0	3-3-1
<i>Fairbody</i>	3-8-0	4-0-4	4-3-1	4-4-0	4-3-2	4-1-4	3-10-6	3-7-1	3-3-2
<i>Heel</i>		4-1-2	4-3-5	<i>Straight</i>				5-0-1	
<i>Sheer</i>		1-9-6	2-5-6	2-8-2	2-9-0	2-8-0	2-5-4	2-1-1	1-7-7
<i>W.L. 1</i>		1-5-2	2-3-7						
<i>W.L. 2</i>		1-3-1	2-1-6	2-7-0	2-8-5	2-8-0	2-5-4	2-1-2	1-8-4
<i>W.L. 3</i>		1-1-2	2-0-0	2-6-1	2-8-1	2-7-5	2-5-1	2-1-4	1-9-2
<i>W.L. 4</i>		0-9-6	1-10-4	2-4-6	2-7-1	2-6-5	2-4-3	2-0-7	1-8-4
<i>L. W. L.</i>		0-5-0	1-1-4	1-9-0	2-1-4	2-3-1	2-1-2	1-7-7	0-4-1
<i>Chine</i>		1-0-1	1-10-2	2-3-7	2-5-6	2-4-7	2-2-3	1-10-3	1-5-4
<i>Rabbit</i>	<i>Filler sided</i>	<i>1 3/4" swelled to 2 3/8" at shaft hole</i>							
<i>Diagonal-A</i>		1-7-7	2-5-6	2-10-4	2-11-4				
<i>Diagonal-B</i>		0-9-6	1-5-4	1-10-0	2-0-3	2-1-6	1-11-4	1-9-1	1-6-4
<i>Diagonal-C</i>		0-5-5	0-11-0	1-2-1	1-3-4	1-3-1	1-1-1	0-9-5	0-5-1

Table of offsets for Shark, a 21-foot Hand runabout. Note—All dimensions given in feet, inches and eighths to the outside of planking. All heights given below base line

Apron: Of clear straight grained tough Georgia pine, in single lengths, 2x4½ inches, bent to form, and securely fastened through floors on heels of frames. To be fastened to keel with ¼-inch galvanized bolts spaced one between each pair of frames. Floors on heel of frames to be fastened through both apron and keel with ¼-inch galvanized bolts. Stem and apron to be riveted with 5/16-inch bolts.

Stem: To be of natural crook hackmatack, sided 1¾ inches and moulded as indicated. To be rabbeted for planking and bearded to carry out all lines of same above L. W. L. except at head, which is to be finished square as indicated. To be fitted with a ¾-inch brass stem band, extending 18 inches below L. W. L. and over top of head. Same to be neatly filed to show as narrow face as practical at and near L. W. L.

Stern: To be double planked of white cedar, total thickness ¾ inch, bent on a 5-foot radius, reinforced by center knee as indicated, with reinforcing oak cleats at sides for side plank fastenings as indicated. Also to have intermediate cleats ¾x1½ inches white oak, spaced in each half of stern as shown.

Frames: All frames to be of white oak steam bent, spaced 7½ inches on centers. Those under motor beds ¾x1¼ inches, all others ¾x1 inch. Heels of frames to be boxed into apron. All floor timbers to be sided the same as frames and carefully fitted on top of frames and to be securely fastened to keel with ¼-inch galvanized bolts, fitted with nuts and washers. Frames to have the required filler pieces of white pine above and below chines as shown in cross section plans. Frames to be fastened to chines with ½-inch copper wire nails and where the bottom edge of side planking and the top edge of bottom planking join the chines there will be a ½-inch copper wire nail through planking, chine and frame. All copper fastenings to be properly riveted over copper burrs. There will be suitable limbers under all floors to lead bilge water to pump.

Chines: To be of Georgia pine in two parts as indicated by plan. Both parts to run full length of hull. Inner member to be 1x3 inches, set as shown and properly beveled to receive planking and securely riveted through all frames. Outer member to be 1x1½ inches beveled to form square caulking seam, fastened securely through inner member and frames with copper nails as above mentioned.

Clamps: Of selected Georgia pine, ¾x2½ inches set as shown, to support decking

alongside of cockpit and securely fastened to heads of frames. To be reinforced in way of cockpit by indicated Georgia pine filler piece or shelf clamp to form backing for cockpit curb fastenings.

Deck Beams: To be of oak sawn to form, sided ¾ inch and moulded 1¾ inches, spaced as shown with ends set into clamp and securely fastened to same.

Motor Beds: To be of 1¾-inch oak or Georgia pine set and bolted in accordance with plan. All parts to be carefully fitted together and securely riveted through frames and floors. Motor a 9-12 h.p. Universal, to be bolted to beds with galvanized bolts extending through fore and aft members with nuts and washers on under side.

Frame in General: All exposed edges of clamps, frames, chines, deck beams, etc., to be neatly fashioned with chamfered edges. All parts to be very carefully fitted to bear evenly and very securely fastened in the usual manner.

Planking: The hull will be planked with white cedar to finish not less than ½ inch. To be fastened with No. 12 copper wire nails riveted over copper burrs. Heads of all outside fastenings to be properly countersunk and bunged.

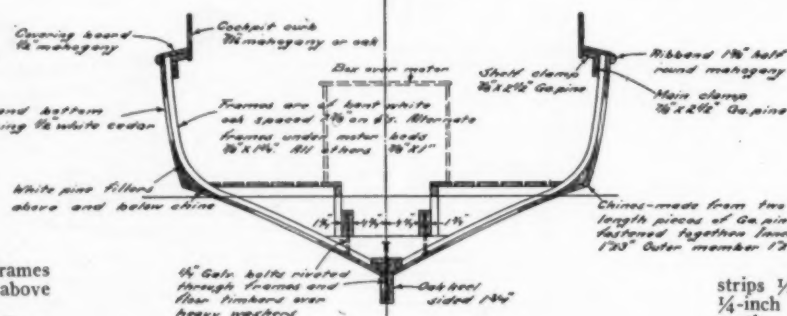
Decking: To be of ½x3-inch matched white pine laid fore and aft in the usual manner, and fastened into deck beams with 1½-inch galvanized wire nails, with heads let in. Deck to be planed perfectly smooth, heads of nails covered with putty and entire deck to be covered with 8-oz. duck in single piece, laid in shellac or marine glue, and ironed down into place with hot flat irons. Edges to be hauled down over outer edge of deck, and neatly tacked where tacks will be covered by ribband rail when in position. Inner edge finished in the same manner.

Cockpit Curb: To be of 7/16-inch mahogany or oak fitted as indicated, and fastened in place with 1¼-inch No. 8 oval head brass screws. Each side to be in single piece with fore end neatly and securely fastened with angle brass plate as indicated. Upper edges to be neatly rounded in the usual manner.

Flooring: To be located as indicated on floor beams of oak 1x1½ inches securely fastened to frames, with two struts or supports under each beam. Removable box to be fitted as indicated over motor.

Flooring to be of selected white pine in

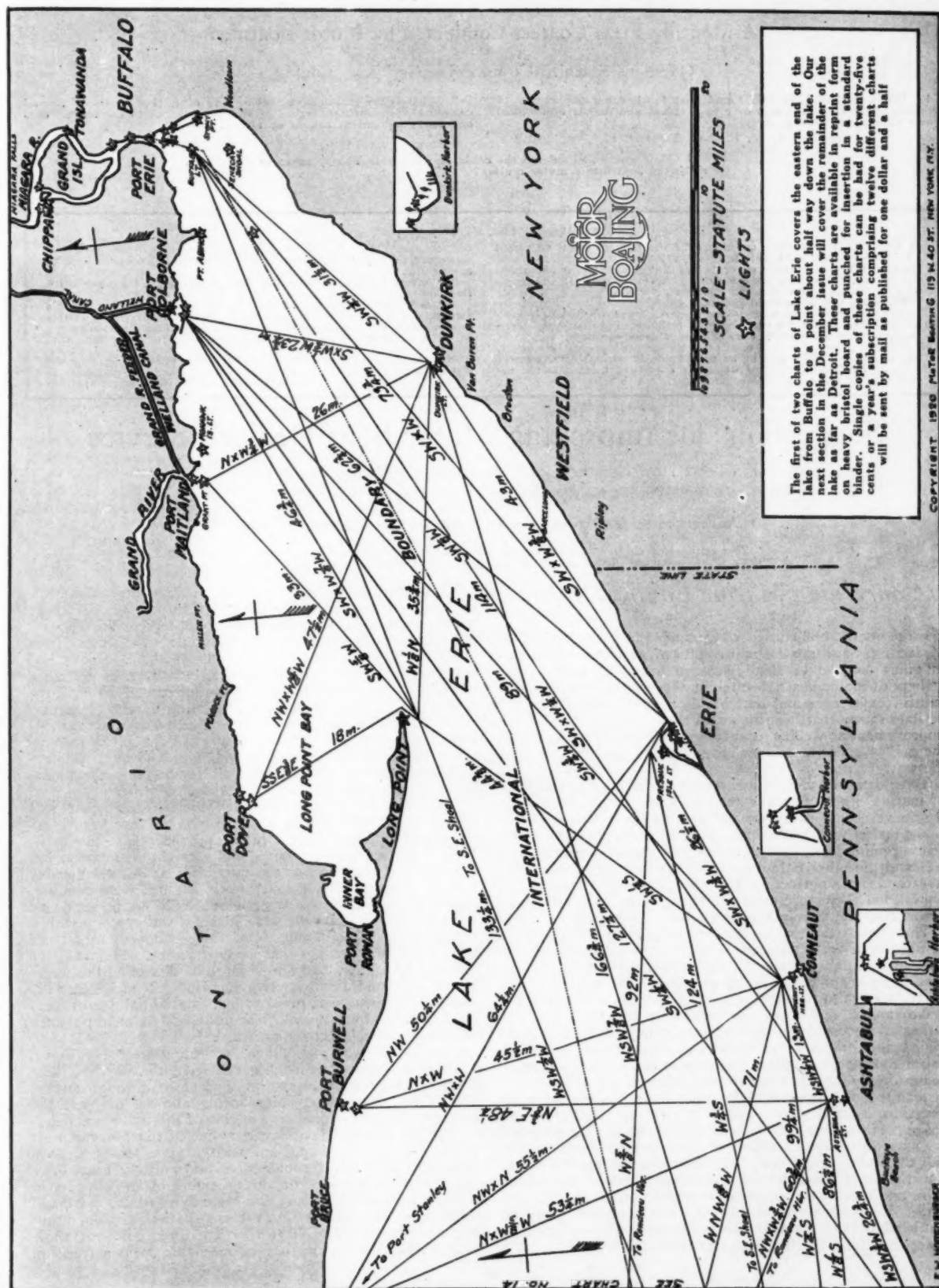
strips ½x3 inches, set with ¼-inch space between, with neatly chamfered upper edges run fore and aft in
(Continued on page 82)



Milship construction section at station No. 4

For Use With U. S. Lake Survey Charts, Catalog Nos. 3, 31, 32, 33 and 34

For Use With U. S. Lake Survey Charts, Catalog Nos. 3, 31, 32, 33 and 34



The first of two charts of Lake Erie covers the eastern end of the state from Buffalo to a point about half way down the lake. Our second chart covers the western portion of the lake, from the lake's western end to Detroit. The charts are available for sale at a special price of \$1.00 each. They are printed on heavy Bristol board and punched for insertion in a standard binder. Single copies of these charts can be had for twenty-five cents or a year's subscription comprising twelve different charts will be sent by mail as published for one dollar and a half.

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SMALL MOTOR BOATS

Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the January Prize Contest

1. What method have you found best for keeping the supply of drinking water on a long trip or give sketches and details of an ideal water supply for a long cruise?

Suggested by W. R., East Elmhurst, L. I.

2. What is the most convenient method of getting access to a small cruiser at its moorings, regarding the maintenance of the tender, oars and spare equipment ashore or afloat?

Suggested by H. H. P., Oakland, Cal.

3. How would you enlarge the cabin of a thirty-foot sloop so as to make the boat into a motor cruiser?

E. L. C., Cambridge, Mass.

Rules for the Prize Contest

ANSWERS to the above questions for the January issue, addressed to the Editor of *MoTOR BOATING*, 119 West 40th St., New York, must be (a) in our hands on or before November 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before November 25. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of *MoTOR BOATING* of which the advertised price does not exceed \$25, or a credit of \$25 on any article which sells for more than

that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of *MoTOR BOATING* of which the advertised price does not exceed \$5, or a credit of \$5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

Suggestions for Improving Motor Boat Dealer's Service

How Greater Cooperation Between Dealers and Agents and the Buying Public May Be Secured

Answers to the Following Question Published in the September Issue

"What criticism would you make of the service rendered by motor boat manufacturers and dealers, outlining any details in which there may be marked room for improvement?"

Concerning Marine Engine Dealers

(The Prize-Winning Answer)

IF the question submitted was intended to cover the manufacturers and dealers and agents of gasoline marine engines adapted to small pleasure boats, as well as the makers of motor boats themselves, the writer, from his own painful experience and that of his acquaintances, does not hesitate to say that in many cases there is marked room for improvement as well as ground for criticism. That is, unless the gentry under discussion have changed their tactics since the war.

Two instances will be mentioned, involving the handling of marine engine agencies on the Pacific Coast, the motors themselves being manufactured east of the Mississippi and being makes well known for years to every reader of any boating publication; one a two-cycle of rather moderate first cost and the other a four-cycle of reputed high-grade construction. It is not meant that these experiences are at all typical, but they serve to illustrate the manner in which old established and widely known engines are handled.

The case of the two-cycle illustrates the care that should be used in selecting agents to handle even a low-priced engine at a distance from the factory, though it is realized that this may not always be possible. The policy of this party, who also handled marine accessories of different makes and a few small ready-made motor boats, was to wring all he could out of every customer and then dismiss him; evidently it was not desired to obtain repeat orders or cause a buyer to return for accessories. One experience being usually sufficient, the victim seldom returned—we were acquainted with many and followed their dealings with interest for several years—and if he did, to purchase some spare part or other article, he was charged, not the price set for such a part by the makers or other reputable dealers, but "all the traffic would bear." If he refused to pay he would sometimes get the article at about one-fourth the asked-for price and receive the explanation that a "mistake" had been made. No pains were taken to sell the interested party an outfit adapted to his wants or to his boat; he was urged to accept anything that happened to be at hand.

Then there were several cases, to our personal knowledge, of clear graft. One man, for instance, intended to purchase one of these engines of about twelve horsepower, but the agency happened to be sold out at that time. However, he was told that if he would "make a deposit" of twenty-five dollars, it would expedite matters in getting a motor out from the factory. Months passed by and the motor never came. Finally the intending purchaser became tired of waiting and bought an engine of another make—and he never got back the twenty-five dollars. Enough of this—the lesson should be plain for those who want to introduce their motors in new territory, for at the present time the motor in question has no representative here.

Regarding the four-cycle, the builders had what was known as a "factory branch" office with a factory representative and different sized motors and spare parts on hand. They were apparently honest and straight financially, but would never concede that the purchaser or interested party had an atom of intelligence. Their engines were sent out with a miniature stern bearing which could not be set up on the stern post without bending it and a water scoop with a series of large and long slots which scooped up all the drift wood and shavings that were passed by. We know, for on the trial trip we had the pleasure of dissecting the water intake pipe and removed two handfuls of such material. The stern bearing was replaced by a substantial one of local manufacture—but it was "lèse-majesté" to mention such things around the factory branch.

This motor was one which, according to the fullsome written matter still being sent out from the factory, is of absolutely accurate workmanship and passes through several painstaking inspections before being allowed to leave the assembly floor. Yet one large engine of this make was delivered to the purchaser with igniters out of time, magneto set ninety degrees out of time and with magnets almost demagnetized; a blow hole through the cylinder of the brass bilge pump, making it useless; about an eighth of an inch play in the key supposed to secure the crankshaft timing gear and with every cam so loose on the camshaft that proper timing was impossible. The owner corrected some of these things while the factory branch mechanic spent a week on

board overhauling the motor. But he was unable to assemble the timing gears, even after marking them himself before taking down the motor, a feat that would seem incredible even for a specimen of the well-known species of "gas-engine expert." So, several weeks later, finding the engine still out of time, the owner took down the camshaft for retiming, discovered the loose cams and had new keys installed at his own expense, the factory branch being unable to determine whether they or the owner was responsible for this defect or how long it would take to rectify things—and the owner was rather doubtful as to their ability to do so. It seems to be the tendency for these concerns to try and place all the blame on the purchaser for such things, even when the evidence against them is overwhelming. If "service" is advertised, then let service be given.

All this makes unpleasant reading, we are aware, but a little less bluff and "bulldozing" and noisy advertising and a genuine desire to serve and satisfy a customer, and to hold him, would make things pleasanter all around. The sport needs boosters, but how can a man boost who feels that he has been given such a poor deal as some of those mentioned above must feel that they have received?

H. H. P., Oakland, Cal.

Lack of Spare Parts Chief Criticism

MOTOR boating for the most of us is at its best a seasonable sport. From June first to October first is about all the actual running time we have. When a part of our engine breaks we have little time to spend writing a factory located some miles distant and then waiting some weeks perhaps for the part to be returned. When we have purchased the engine through an accredited agent we are sometimes able to obtain the part we desire from him, but as a rule these agents carry only a few of the more simple parts that take up little room and require a small outlay of cash. Crankshafts, new cylinders, connecting rods and similar parts are not carried by one agent in a hundred.

Lack of standardization is a fault that is found in many engine factories. This fault results in the shipment of a spare or replacement part that will require considerable machine work when it reaches the customer before it will fit the place taken up by the old part. A man who has sixteen week-ends of pleasure is in no amiable frame of mind if three or four of these periods are spent waiting for a spare part and then hand filing it to fit.

I believe that builders should establish branch houses or reliable agencies in the larger cities and then see to it by means of charts that each of these houses are kept constantly supplied with spare parts. All machines should be made from jigs and templates so that complete interchangeability is possible. To assist along this line the number of models built should be reduced as much as possible.

A prevalent cause of trouble between builder and buyer is the guarantee. Usually the makers guarantee to replace parts free of charge for a certain period of time, providing the broken part is sent to them charges prepaid and if upon their examination it is found that the break was due to negligence on their part, after a week or so they will then express another part charges collect. Such a guarantee is as near useless as anything could be. If the motors were tried out thoroughly on the block a flaw would show up. In this case no guarantee at all would be better than the farcical one so often found within an ornamental border on the inside of

the front cover of the catalogs or other literature issued.

Another point is the quick provision for expert service men who can quickly reach a customer who is having trouble with his machine and who are competent to make repairs or adjustments in short order. Such service should be supplied at a cost that would simply include the man's time. Many engine builders charge a 100 per cent profit to the service man's wage. I believe that the answer to the whole matter can be summed up in standardization, proper spare part stocks in various cities and proper service men to be provided at cost.

W. C. T., N. Y. C.

Service Is Bound to Pay

IT is doubtful whether motor boating service can ever be brought to the high standard existing in passenger car and other automotive lines, but experienced boatmen generally assert that there are some respects wherein marked progress may be made toward putting it on a more tangible and useful basis.

Among obstacles to be overcome are the variable, seasonal, and regional use of motor boats, the diversity of size, types, and designs, the scarcity of dealers and repair shops, and the indifference to correct operation, lubrication and care by many owners.

Because boating is largely seasonable, many dealers fail to maintain an adequate stock of service parts, for fear of being caught with a slow turnover of "stickers." Manufacturers could help relieve this by aiding dealers in the selection of essential parts and, where transportation charges are not extreme, by taking back, at the end of the season, unsold stock on which seals are unbroken. This would also afford makers better opportunity to keep accurate records of most needed items and regulate spare parts production more consistently.

Boating districts are generally scattered and sometimes isolated, so that time and expense of forwarding parts from the factory cause complaints frequently harmful to the reputation of dealer and maker. By providing reserve stocks with large dealers, or establishing factory branch stations, which might be drawn on by smaller dealers or individuals in adjoining counties or states, patrons could get what they need when they need it more uniformly. In populous

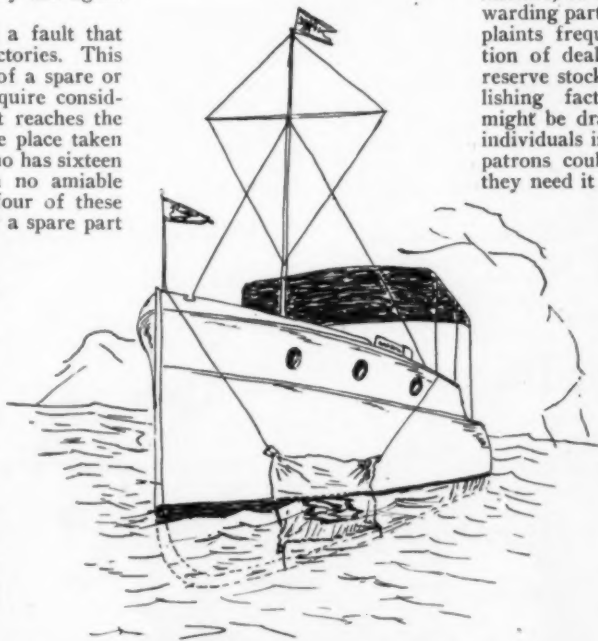
regions, associated groups of dealers, or the branches, might buy or hire a motor truck to furnish prompt and complete deliveries.

Closely standardized motor craft seems about as remote as standardized millinery; but by more thorough use of systematic card indexes, demand charts, and owner lists, spare part production would not diverge from demand as widely as it does now.

To increase the number of marine sales and service stations, manufacturers must present the opportunities they afford in a more vivid and definite manner. Many details of advanced selling methods, shop lay-out, equipment and management might be acquired from car and truck dealers. Numerous

successful automobile dealers who have recently added trucks and tractors to their lines could be recruited as desirable representatives by motor boat makers. A few "field" or traveling service men in distinctively painted runabouts or cruisers maintained by the factory might navigate "trouble," "new dealer" or "competitors'" zones as aids to service, sales, and publicity all season. As an honest utility,

(Continued on page 50)



Temporary canvas patch applied to the outside of a broken plank according to the method suggested by W. B. M.

Emergency Repairs in Case of Accident

Valuable Suggestions for Keeping the Boat Afloat and Steps to Be Taken When Damage Occurs Under Water

Answers to the Following Question Published in the September Issue

"Explain and illustrate how you would temporarily patch a stove in plank so that the boat could proceed and how would you keep her afloat?"

Emergency Methods for Broken Planking

(The Prize-Winning Answer)

THE greatest menace to motor boating is the floating log. It is apt to be anywhere and cannot be charted. Old docks with their submerged piling or rock fill and submerged rocks would be worse were they not charted. Piling never rots below low water and generally cannot be seen. The charts show their location and the depth of water over them. Time spent in studying the charts is far from wasted, especially when cruising in strange waters. The chances of fouling some submerged object near shore more than offsets the advantage gained in avoiding the tidal flow. By keeping well off shore you will also avoid the line of drift and floating logs. It is against the law to set timber, etc., adrift in any navigable stream, but they often get away and fallen trees drop into the water or are washed from the beach at high tide.

The sinker (water-logged timber) is hard to see in the daytime and the results of hitting one are about as bad as hitting a rock or pile. A floating soap-box sunk one of our promising speed boats in a race. A cruiser of ordinary speed would not have been damaged. It is the velocity of the impact that does the damage.

After the plank has been stove in is no time to stop and think what to do. You must act and act quickly to prevent the boat from filling with water. If the damage is aft, sit on the safety valve, as the old steamboat men used to say; give her all you've got and head for shore; but don't do it with the break forward unless you are sure of making shore quickly. It is just possible that a floating object having a sharp end will be driven clear through the planking and stick there. Unless the boat is filling rapidly don't try to remove it in deep water. Too much time will be wasted. Get a line on it and make fast so that the plug which did the damage will stop or lessen the inrush of water. It may be possible to shift the load so that the hole is above the water. The bow raises as the stern settles at speed. Use your own judgment as to speed.

A stove-in plank requires quick action. The occasion requires a cool head and a quick mind. Very likely if you lose your head, all is lost where it could be saved. Don't stop to see how fast she is filling—stop up the hole. If the hole cannot be reached readily to stuff it full of old clothes, get a canvas over the bow and around the bilge so that it will cover the break.

To blanket

the stove-in plank, you will take any piece of canvas or a blanket—try anything you have handy. It is preferable that the canvas be large enough to extend from keel to waterline and several feet each side of the break. Firmly attach lines to the four corners and put it over the bow in such a manner that it can be drawn back to cover the hole and pulled up tight against the planking. Make the lines fast so that the canvas will not shift. This method is used on steamboats when cleaning or repairing the sea-cock and is called "sweeping the sea-cock." The pressure of the water forces the canvas partially into the hole, drawing it tightly to the sides of the break which stops most of the water.

Until the sweep is in place don't stop to see how much water is in the boat. It is wasting time. Should you have plenty of help man the pumps at once, but if short-handed get the sweep over the hole and then pump hard on every available pump. Run at reduced speed in order to not loosen the sweep by water being forced behind it.

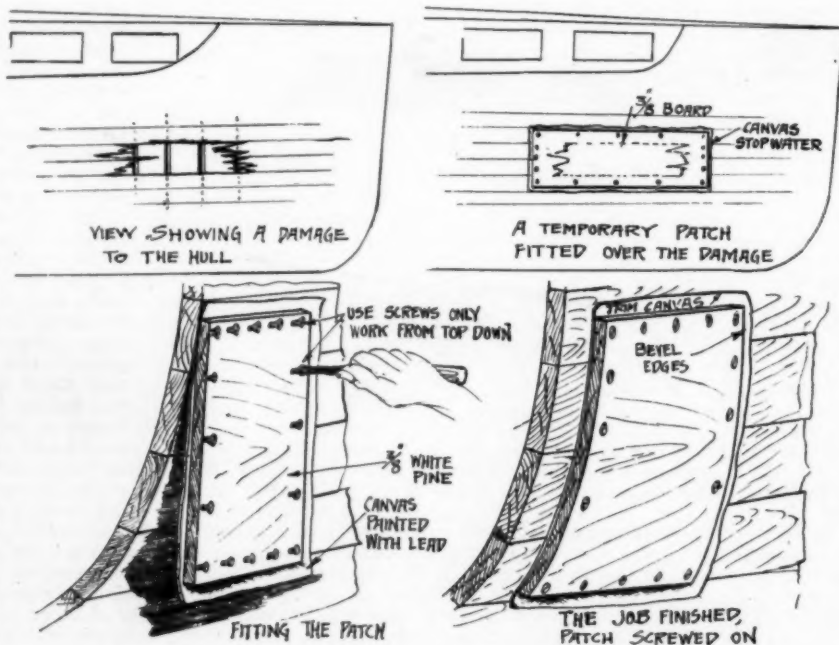
Should it be plainly evident that the boat cannot be kept afloat, fasten the anchor line to the motor and bend on all the spare line you have, attaching a buoy or life preserver to the end. In case she sinks entirely you have a means of locating her and something strong to raise with.

After you have made shore your real troubles are over. You will have plenty of help to pull the boat up on the beach or a marine railway. If necessary to beach her, you can wait for low tide, put on the patch and work off when the tide raises.

Putting on an emergency patch so that you can proceed is nothing to what you have already done. A piece of sheet lead bedded in white lead or thick paint and closely tacked around the edge will effectively close an ordinary hole for the remainder of the season. If a new plank is not fitted soon after the damage, it is advisable to reinforce the patch by filling in the break and placing butt blocks between the frames, securing them by means of a long batten screwed to the frames.

When sheet lead is not handy, canvas will answer the purpose. Double the canvas and put white lead or paint between the fold. Fasten this over the hole by nailing battens around the edge. The white lead may be omitted but the leakage will be greater. In case of a large break it is advisable to nail a half-inch board over the canvas patch besides the battens.

Here's hoping that you never meet with such an accident, but if you should



A patch applied after the boat has been beached will do for the balance of the season, says W. R.

keep cool, use your head and work fast. Your chances of saving the boat and all on board without a ducking are good.
W. B. M., Newburgh, N. Y.

Making a Temporary Patch

IN making a temporary repair over a broken plank in a motor boat it does not always mean that the boat will need to be hauled out or put on the beach. If the damage is slightly below the waterline it may be quite possible to list the boat over enough to make a temporary repair that will hold for a sufficient length of time.

When the damage is below the waterline where listing the boat would be impossible, the best way to stop a leak caused by a collision is by means of a collision mat, that is a canvas sling wrapped around the boat with rope ends by which the sling is secured thoroughly to the boat, by this means she may be safely brought to a beach or marine railway where a temporary repair would be completed.

To effect a temporary repair, a three-eighths-inch white pine board is used, sufficient in size to cover the damaged planking. Several different sizes of boards should be always kept on hand for just such a repair of this nature. If the damage is large, two boards are used and the joint caulked and made watertight.

To make the board water-tight on the hull, a piece of fairly heavy canvas is laid over the damaged part to be covered. This canvas stop-water should be thoroughly painted with white lead and tacked on the hull.

The board to cover the patch is now cut to shape larger than the damage by about four inches—this being for fastening to the solid planking. This board is best made of white pine or spruce. All fastenings to the hull should be by means of screws, brass or galvanized now being used. No nails should be used as this patch is temporary and screws are more effective.

If the damage is on a curved section of the boat, say on the turn of the bilge, then the board should be steamed or soaked in hot water to bend easily. The top row of screws are first screwed, then the lower edge of the board is gradually pushed in to the hull and the remaining screws are driven in.

The canvas is then trimmed off and the edges of the board beveled to present a fair surface to any obstruction the boat may encounter. This repair will look neat and carry a motor boat safely through a season until a more convenient time when a permanent repair can be accomplished.

W. R., Elmhurst, L. I., N. Y.

Quick Action Necessary

IT will require quick action to prevent the boat from sinking when a plank is badly stove in. Often the best and easiest thing to do when an accident of this nature occurs would be to beach the boat, but of course this could only be

done where a suitable shore or beach was within easy reach. Attention is called to this plan to quickly prevent sinking in deep water because accidents of this kind are much more likely to occur around harbors or rivers where submerged piling or wreckage may be encountered than in open waters far from land.

However, should beaching be impractical, the hole or opening must be quickly closed to stop the rush of water. The engine should be shut down immediately unless beaching the boat is to be tried. Then take a blanket, comforter, cockpit curtain, or even a heavy coat or, if the opening is not too large, even a small pillow; whatever of the above that happens to be quickly available, put this over the side in such a way as to cover the opening and the water pressure will tend to force it in, but don't depend too much on this pressure, hold it in place as well as you can while an assistant quickly passes a line over the bow and works it back under the keel to where the break is. With the ends made fast on deck and the line hauled taut over the pad it will be held temporarily until something more permanent can be arranged. Perhaps another line arranged in this way may be required and if a few nails are available, use them to prevent the pad from becoming displaced.

If the boat is of much size you will perhaps not be able to reach the damaged plank as it may be well below the waterline, and in this case it might be best to attach lines to each corner of the blanket, canvas, or whatever is used, and passing two of these lines down over the stem and under the keel, haul the pad into position; one advantage being that when once in place, it is pretty well secured.

Of course, quick action is of the greatest importance in giving the boat this first-aid treatment and there might not be sufficient time to prepare a pad with lines in this way if the opening was of considerable size, and it might be necessary to even go over the side (with the aid of a life preserver if not a good swimmer) and force something into the hole to stop the rush of water until something better could be provided. Now that the water is temporarily checked the pumps should be started if this has not already been done.

On many boats of the cruiser type there are at least one canvas pipe berth and this heavy canvas with grommets around the edges for attaching lines would be almost ideal for covering a stove-in plank as it could be easily drawn into position with suitable small lines. If such a piece of canvas is on board, it should now be used to replace the temporary pad. After this is in position and held by lines passing around the boat, it may be more securely fastened by nailing small strips of wood over the canvas around the edges of the hole. Should the break occur far below the waterline, it may be necessary to heel the boat well over by shifting weights, ballast and supplies before this nailing can be done and if possible the boat should be taken into shoal

(Continued on page 82)

Locating a Knock in the Motor

Devices and Methods Which Will Enable One to Readily Locate the Troublesome Knock

Answers to the Following Question Published in the September Issue

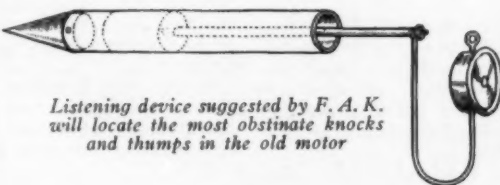
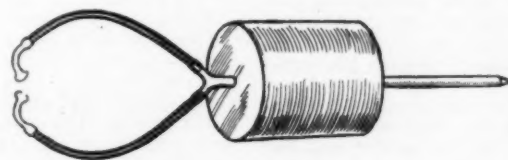
"Explain any method or device that you have used with satisfactory results in locating a knock in a motor."

Listening Devices Locate Knocks

(The Prize-Winning Answer)

ENGINE noises and knocks are a bugbear to any motor boatman, and while there is considerable difference of opinion of the usual non-mechanical onlookers as to where the noises exactly originate from, their source is quite easily located by anyone with an ordinary knowledge of his motor by the use of two easily constructed devices.

The first device to be described is virtually a powerful stethoscope and while it is the most difficult of the two to con-



Listening device suggested by F. A. K. will locate the most obstinate knocks and thumps in the old motor

struct it is well worth the time and effort. It consists essentially of a cylindrical chamber 3 inches in diameter and 3 inches high, a piece of light gauge tubing of any material, lower end or head being a disc of shim steel about .007 inch thick with a 3/16-inch steel rod (8 inches long) riveted to the center of the disc. Steel disc can be fastened to the 3-inch cylinder by first turning the edge of the cylinder inward, dropping the disc into position, then forming a wire ring to fit against the disc inside the cylinder and, when in position, solder ring to inside of the tubing. The upper end or head is a brass or copper disc of

16-gauge material soldered to the cylinder. A copper Y, as used with acetylene gas-lamp tubing, is soldered to center of cable or brass disc and two short lengths of 3/16-inch or 1/4-inch rubber tubing attached to the arms. To use this device the ends of the rubber tubes are placed in the ears, and the point of the rod rested on the part of the motor from which the knock seems to come. The vibration passes through the motor, through the rod to the diaphragms, thence through to the ears.

The other device is constructed with a 10-inch piece of brass or aluminum tubing approximately 1 inch in diameter with a pointed iron plug about 1 1/2 inches long fitted snugly to one end of the tube. Another 2-inch piece of round iron is required to act as a sliding piston or plunger inside the tube and a 3/16-inch iron rod 10 inches long is threaded to the piston as a guide, also for the attaching of a regular telephone receiver with a short length of solid wire, heavily insulated or covered cable. To use: Touch the parts of the motor from which it is suspected the noise arises, varying the air space in the cylinder by means of the plunger inside the tube, which intensifies and locates the exact place of the sound. It must be understood that the motor must be running when tests are made. The knock made by faulty carburetor adjustment is cautioned against. Worn main bearings are located by running alternately the two cylinders on each side of the main bearing, first testing, however, both the end bearings. The sound produced by a main bearing is a hard thump. Loose connection rods produce a sharp clanking sound. Worn wrist-pins, a sharp, metallic knock and loose flywheels produce a heavy knock at regular intervals. A piston slap can be distinguished by short sharp knocks; loose tappets, worn cams and camshafts are easily located by the brisk tap produced and the close proximity to the outside of the motor.

F. A. K., New York, N. Y.

Plain Wooden Dowel is the Simplest Device

KNOCKS in a motor are a bugbear of every operator of the gasoline motor, and while at first the problem of locating the source of the knock may appear to be quite a problem, it really is not so difficult.

The first device used by the writer in locating the sources of trouble of this sort was an ordinary common, everyday variety of yardstick, one end of which was grasped firmly in one hand and held tightly against the ear, the other ear closed and the free end of the stick placed against different parts of the motor. Simple as this device is it was of considerable assistance. Later a hard maple dowel of about 3/4-inch diameter and two feet long was substituted. A light metal bar may also be used but is perhaps a little more clumsy to manipulate.

The last and most satisfactory device was made of an old telephone receiver. This was sawn off at the small end and a 5/16-inch hole was drilled through from one end to the other, the ear-cup and diaphragm being first removed. The diaphragm was then drilled in the center and was clamped between two nuts which were threaded on a piece of 1/8-inch rod, this rod being about two feet in length. These nuts were drawn up tightly, the rod slipped through the bored hole in the receiver, and the ear-piece screwed down, clamping the diaphragm firmly in place. In actual use one end of the rod is placed against the motor and the receiver held to one ear, the other being closed. This instrument amplifies the motor knock to an unexpected degree, and by applying it to the different cylinders and different parts of the case the source of the trouble can usually be located in a very few moments.

The dull knock of the loose bearing or loose flywheel is readily distinguished from the sharp sound of the loose wrist pin, while the piston slap or a large tooth in a gear can readily be distinguished after a very little practice. Care should be taken in using this instrument not to allow the side of the rod to touch any portion of the motor as this will lead to a confusion in the sounds.

A cheaper substitute was made by a friend of mine who

used a small tin can from which the cover had been removed, the rod being fastened to the bottom of the can in exactly the same way as in securing the rod to the telephone diaphragm.

In an emergency case the stick used for measuring the depth of your gasoline in the tank or even the small bow flag staff can be used, the results secured while not as satisfactory as those with the telephone receiver are such that considerable time and labor in the pulling down of the motor to reach the offending part may be obtained.

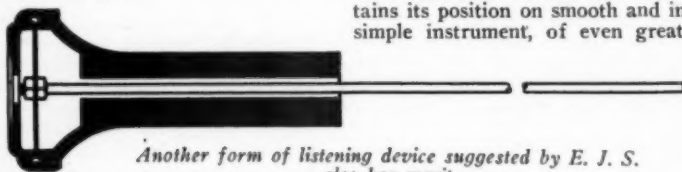
E. J. S., Springfield, Mass.

Check Up the Installation Before Looking for Troubles

BEFORE setting out to locate and eliminate knocks in a motor, it is well to see that it is installed, handled, lubricated, and cooled according to its makers' instructions. When these considerations have been approved one may, by studying the main knocking symptoms systematically and at close range, nearly always locate the source positively, although it often requires considerable perseverance and alertness.

In the maze of slaps, thumps, wallops, taps, and rattles included under knocks that may develop with hard usage, neglect or accident on even a fine motor, it is often difficult to pick out individual sounds by ear alone; so it is helpful to resort to artificial aids in segregating and "getting a line on" the miscellaneous knocks. An old piece of flexible speaking tube, which one may acquire from an apartment house or hotel custodian or from a dictaphone or office supply shop, makes a device which the writer has found helpful. The motor end of this outfit was magnetized, so that it retains its position on smooth and inclined surfaces. Another simple instrument, of even greater value in locating the

faintest knocks, was home-made with a discarded brake-rod off a car furnishing the "means," and a long, thin, wooden file handle the "end." The rod was filed down to about one-quarter of its diam-



Another form of listening device suggested by E. J. S. also has merit

eter near the point and, overlapping the front of the handle, about eight close turns of annealed steel wire (18 gauge) serve to amplify the transmitted sounds.

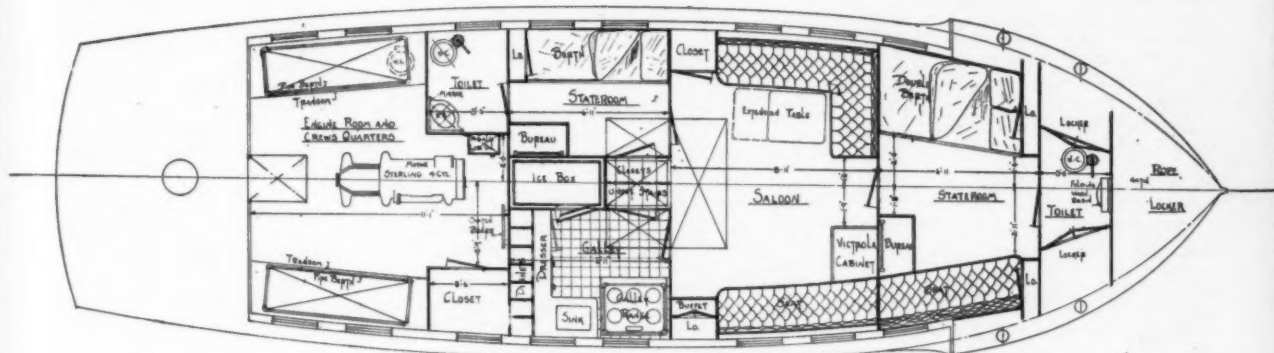
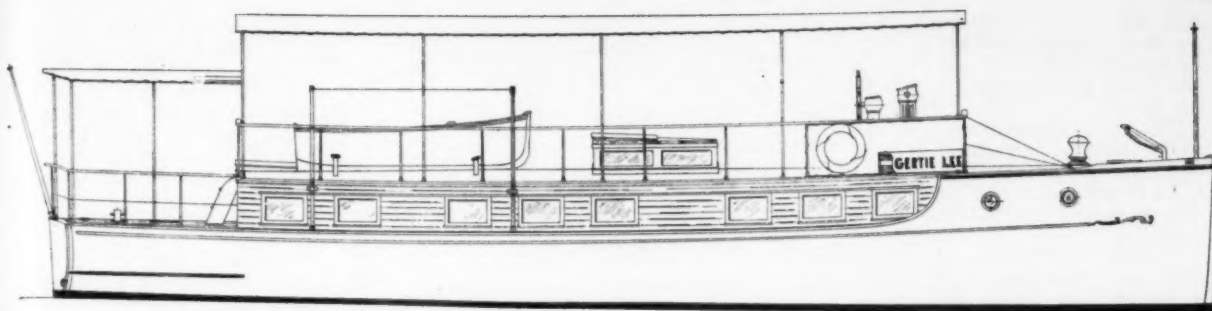
The former device is used mainly on the pronounced "wallops," such as bearing or wrist pin knocks and piston slaps, while the latter is better adapted to the fainter, duller knocks and slaps of loose or worn cams, camshaft, valve rollers, lifters, tappets, springs and rocker arms, couplings, bushings, pressure pumps, timing gears, chain, etc.

It is always best to get the motor thoroughly warmed and hitting and throttled as steadily as possible, and gearing and exhaust quieted, before using the tube or bar. Then, moving the same from point to point, will pass the sounds to the outer end, where the ear (or some prefer the forehead, teeth, or tongue against the bar handle) can detect many variations in pitch and volume which reveal the offending unit or parts.

Knocks vary so much in different grades and types of motors that it is impossible to designate any method of identifying them all. Varying compression and explosion pressures, especially on a multi-cylinder job, by opening petcocks slightly and consecutively brings out wrist pin and piston knocks. Often knocks in connecting rod or crankshaft bearings or oil or water pump may be heard best by "sounding" directly below or alongside of the same. Carbon knocks produce fouled spark plugs, valves and cylinder walls, which are easily observed or felt on most motors. Shorting the spark plugs or distributor or magneto terminals and frequently varying the spark and throttle position aid in tracing a knock to a certain cylinder or to improper timing.

In any case, it is best to keep both ears open and some kind of helpful sounder handy for detecting, in their incipient stage, abnormal sounds, before a resulting grind, or breakdown reveals a damaged or ruined part.

D. McC., Detroit, Mich.



Outboard profile and general arrangement plan for the 50-foot houseboat *Gertie Lee*

My Ideal Motor Houseboat

No. 2, *Gertie Lee*—A 50-Foot Motor Cruiser

By N. C. Cushing

HERE is a boat for a man who wants a small houseboat with nearly all the accommodations and comforts of a larger one.

When I designed the *Gertie Lee* I tried to make everything as compact as possible and still not crowd anything.

The owner of a boat usually wants a room that is cozy and has a few conveniences that the other rooms do not have. The forward stateroom is just the one for him and contains a double berth with drawers under, seat, bureau and lockers with a toilet adjoining.

A large saloon with victrola cabinet, closet, which may be used for fishing tackle, etc., buffet and extension transom makes a very cozy place. Opening from the saloon on the starboard side is a very compact galley with a large icebox, range, dish racks and a dresser consisting of drawers, lockers and a sink, mops, pails, etc., may be stowed away in a closet under the stairs.

Leading from the saloon on the port side is a stateroom containing a single berth, with drawers under, bureau, locker and a closet under the stairs. There is a toilet aft of this state-

room. Oftentimes the accommodations for the crew are somewhat cramped. I've tried to make an engine-room and crew's space combined that will be suitable for the men. Two berths are hung over the transoms that have lockers under. A large closet is located on the starboard side. This is large enough to take all the crew's wardrobe.

The engine is a Sterling four-cylinder heavy-duty with a bore and stroke of $5\frac{1}{2} \times 6\frac{3}{4}$ inches and develops 25 to 55 h.p. considering that a good substantial engine rather than one for speed is needed.

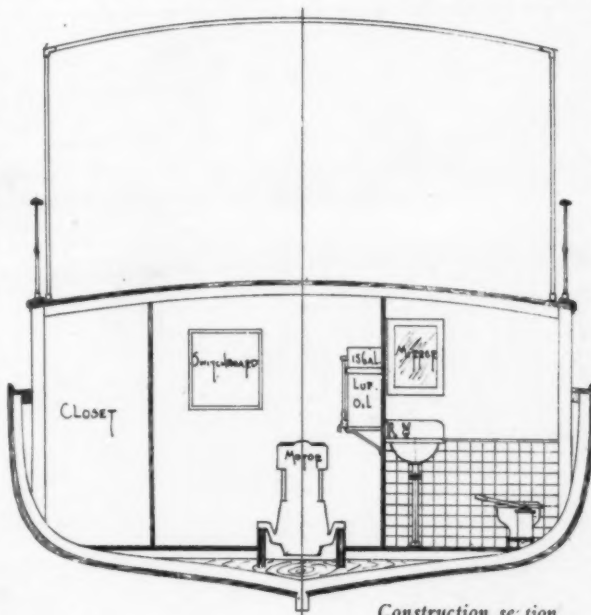
Weather cloths are provided for around steering wheel and binnacle which are located forward on deck.

Amidships there is a seat on both sides of the companionway that leads down to the saloon. An 11-foot dinghy is located aft. Plenty of light may be had in each room by large windows which lift up. For a man who wants a small motor houseboat I would call this an ideal one.

Complete specifications for *Gertie Lee* follow:

Dimensions.—Length, overall, 50 feet 5 inches; beam, 15 feet; draft, 2 feet 6 inches.

General Description.—



Construction section through the engine room

This boat is to be of the general appearance, arrangement and style as shown on the accompanying plans.

To be constructed of wood and in accordance with the detailed specifications following herewith and with the plans furnished.

Material and Workmanship.—All materials and workmanship to be of the best quality for the purpose intended. All wood used in the construction as specified must be thoroughly well seasoned, free from all defects, sap, knots, windshakes, etc.

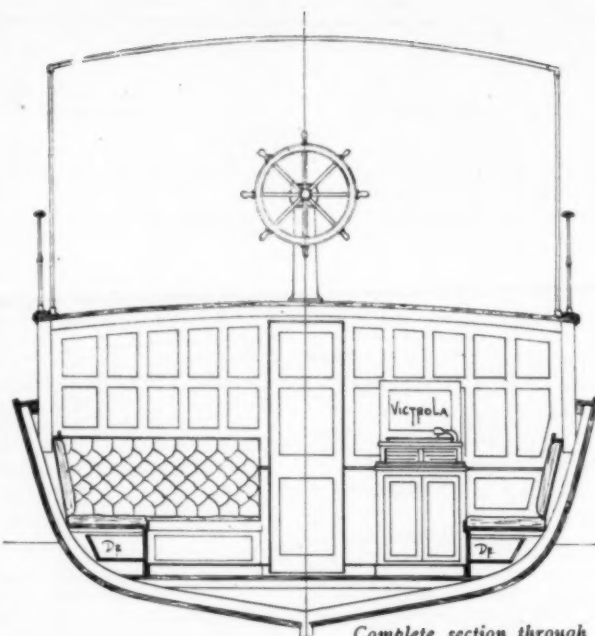
Lines.—To be laid down on a mould loft from table of offsets to outside of planking and carefully faired.

Keel. To be of white oak not more than two lengths, to side $3\frac{3}{4}$ inches and of shape shown in section.

Stem. To be of white oak sided $3\frac{1}{2}$ inches and moulded as shown on drawing to be backed by hackmatack or oak knee.

Stern. To be bent to shape and built of three thicknesses properly glued together with waterproof glue, each piece to be $\frac{3}{8}$ inches, the outer member to be of Mexican mahogany. To have suitable oak cleat riveted to same to receive fastenings for hood ends of planking. To be securely fastened to keel by a heavy oak knee.

Frames. To be of white oak $1\frac{1}{2} \times 1\frac{3}{4}$ inches spaced 10 inches on centers. Every other frame in way of engine



Complete section through the main saloon

to be a web frame $2\frac{1}{2} \times 1\frac{3}{4}$ inches as shown on plans. Sawed frames to be made from oak plank halved together at bilge and fastened with brass machine bolts and nuts to be sided 2 inches, moulded $3\frac{1}{2}$ inches at heel, 3 inches at bilge and $2\frac{1}{2}$ inches at head.

Limber Holes: Of suitable size to be provided with an endless chain.

Bilge Stringer: There will be two yellow pine bilge stringers on each side of the ship $3\frac{1}{2} \times 1\frac{3}{4}$ inches tapered to $3 \times 1\frac{3}{4}$ inches at ends.

Hogging Girder: To be of yellow pine $6 \times 1\frac{1}{2}$ inches as shown on drawing tapered to $5 \times 1\frac{1}{2}$ inches at ends.

Shelf: To be forward raised deck portion of the boat of yellow pine 3×2 inches.

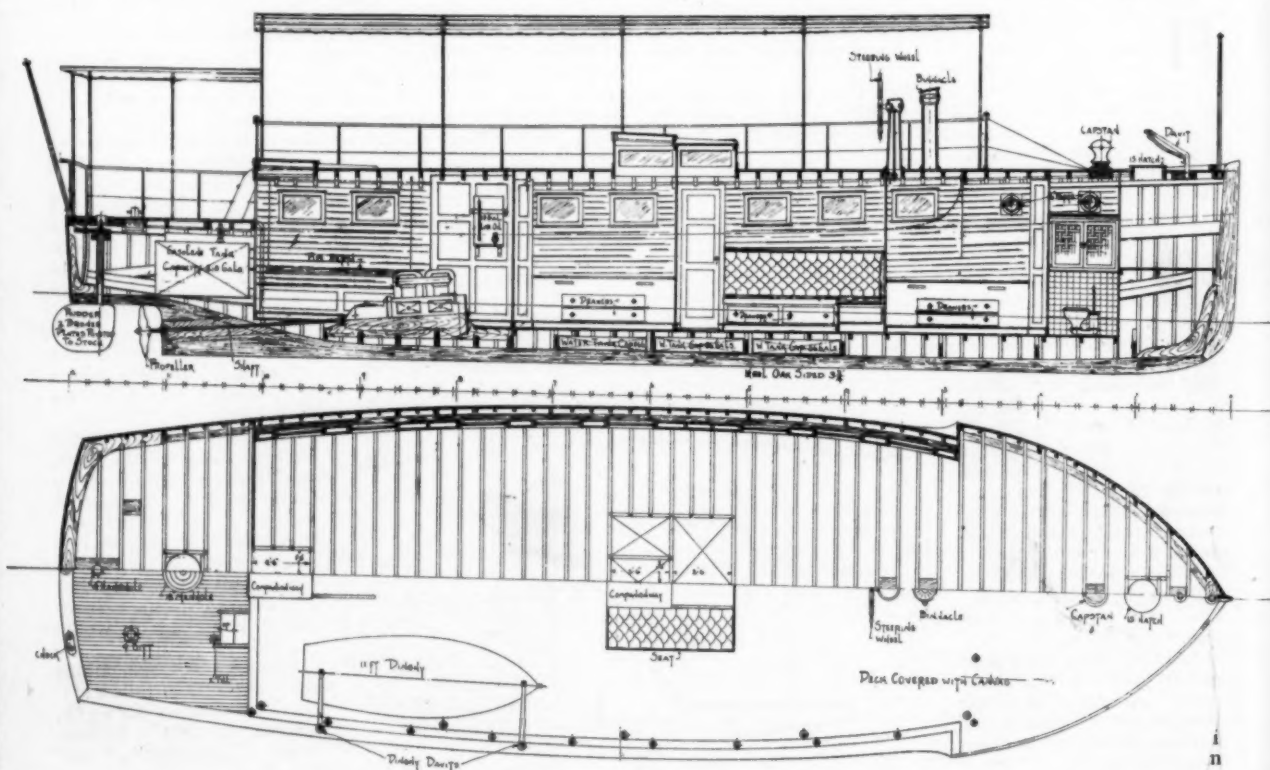
Floor Beams: To be of yellow pine $1\frac{1}{2} \times 3$ inches to be fastened to frame

with galvanized boat nails.

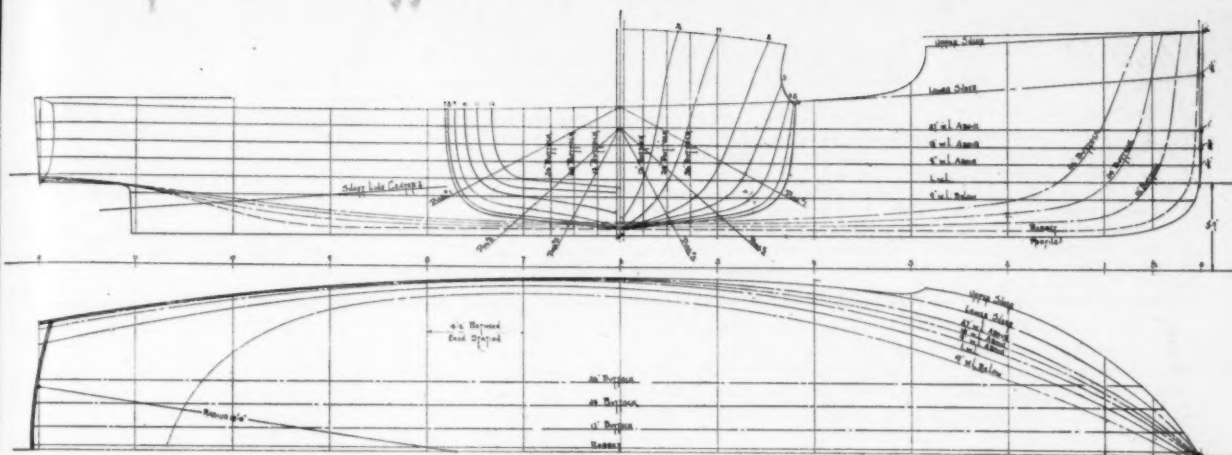
Cabin Floor: To be of white pine $\frac{3}{8}$ inch tongue and grooved, fastened with galvanized nails with the proper hatches and center sections loose for access to bilge.

Planking: To be $1\frac{1}{4}$ inch yellow pine. Planking above waterline to be not over 5 inches in width and planking on bottom to be not over 7 inches in width.

Deck Beams: To be of oak $1\frac{3}{8} \times 3$ inches spaced about 10 inches on centers. In way of cabin trunk deck beams to be dovetailed into sill and fastened with galvanized



Inboard construction profile, beam plan, and deck plan for Gertie Lee



Lines of the Gertie Lee, which are required for building the boat

screws. On after deck, beams to be fastened to clamp. Inboard ends of half beams to be dovetailed into hatch and trunk stringers, hatch stringers to be 2 x 3 inches and to be fastened with galvanized screws.

Decks: To be of 1 1/2 x 2 inches white pine, tongue and grooved, laid with galvanized nails and covered with No. 10 canvas. After deck to be of white pine laid parallel to center line of boat, blind fastened with galvanized nails caulked and puttied.

Planksheer: To be run as shown of mahogany and to be 1 1/4 x 7 inches properly fastened with galvanized screws counter-sunk and plugged with mahogany plugs.

Side of House: To be of mahogany 3/4 inches on the outside and 1/4 inches in the inside and framed for windows. Windows to be swing up sash.

Caulking: Hull below waterline to be caulked with one thread of cotton, one thread of oakum. Deck to be caulked with one thread of cotton and payed with brown marine glue.

Port Lights: They are to be four plain brass 6-inch lights to open in and to have sheet brass collars through

the hull of such a length as is required by thickness. Fastenings: Shelves, clamps, etc., to be fastened with galvanized iron bolts and nuts as usual in the best practice of yacht building.

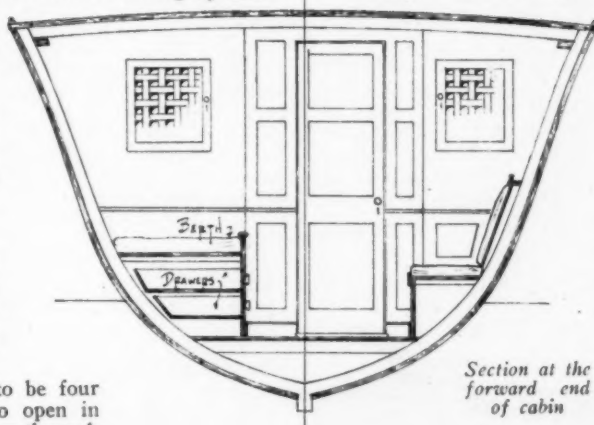
Deck Work.—Guard: Of yellow pine 2 1/4 x 2 1/4 inches properly fastened and painted, located as per plans.

Chocks and Cleats: Necessary brass chocks and cleat to be placed where desired by owner.

Companionways: A companionway of mahogany leading to saloon. Said companionway to have mahogany coaming 1 1/4 x 2 inches rabbetted to take framework. On each side of companionway a seat shall be as shown on plan.

Manholes: An 18-inch brass deck plate to be on afterdeck over lazarette. Said deck plate to be made up of brass rims filled in with white pine to match deck. To have brass grating.

Flyrail Stanchions: To be of forged steel about 2 feet 6 inches long and 3/8 inches diameter at lower end, tapered to 9/16 inches at upper end having an eye half way down from top, (Continued on page 86)



Section at the forward end of cabin

OFFSETS FOR A 50-FOOT WL MOTOR HOUSE BOAT

DESIGNED BY N.C. CUSHING

MEASUREMENTS GIVEN IN FEET- INCHES AND EIGHTHS

STATIONS	HALF BREADTHS										HEIGHTS ABOVE BASE							DIAGONALS		
	BOTTOM KEEL	RABBIT	9" WL	12" WL	15" WL	18" WL	21" WL	24" WL	27" WL	30" WL	BOTTOM KEEL	RABBIT	12" BUTTICE	15" BUTTICE	18" BUTTICE	21" BUTTICE	24" BUTTICE	DIAG. 1	DIAG. 2	DIAG. 3
0	0-1-2	0-1-7	0-7-0	0-11-1	1-2-4	1-4-3	1-6-5	1-11-4	2-6-0	3-0-0	1-5-0	2-2-2	3-11-0	8-5-0		8-5-0	10-3-4	1-5-7	1-5-2	2-3-4
1	0-1-7	0-1-7	1-6-6	2-0-7	2-5-0	2-7-7	2-10-4	3-3-7	4-3-0	1-5-4	1-9-0	2-3-5	3-7-4	2-4-6	8-1-2	10-0-4	3-1-4	3-0-0	3-5-2	
2	0-1-7	0-1-7	3-2-4	3-10-0	4-3-0	4-7-0	4-10-6	5-6-4	6-4-2	1-4-5	1-8-0	2-0-0	2-5-1	2-11-2	7-3-7	9-3-6	4-11-4	4-5-0	4-2-6	
3	0-1-7	0-1-7	4-7-0	5-2-0	5-6-6	5-10-1	6-1-7	6-8-5		1-4-5	1-7-6	1-10-5	2-2-0	2-5-4	7-6-2		6-1-4	5-1-4	4-5-2	
4	0-1-7	0-1-7	5-7-4	6-1-4	6-6-0	6-8-8	6-11-0	7-3-4		1-4-3	1-7-4	1-9-7	2-0-0	2-2-1	7-3-4		7-0-0	5-6-4	4-7-0	
5	0-1-7	0-1-7	6-4-0	6-9-2	7-1-0	7-2-4	7-4-0	7-6-0		1-4-2	1-7-4	1-9-2	1-10-7	2-0-0	7-1-1		7-6-4	5-2-1	4-8-0	
6	0-1-7	0-1-7	6-8-5	7-1-2	7-4-4	7-5-3	7-6-0	7-6-4		1-4-0	1-7-4	1-9-0	1-10-2	1-11-0	6-11-4		7-10-2	5-11-1	4-8-6	
7	0-1-7	0-1-7	6-10-1	7-2-3	7-5-4	7-5-4	7-6-0	7-6-1		1-3-6	1-7-4	1-8-7	1-10-1	1-11-0	6-10-1		7-11-0	5-10-4	4-8-6	
8	0-1-7	0-1-7	6-8-2	7-0-4	7-3-4	7-4-0	7-4-4	7-4-6		1-3-4	1-7-4	1-9-3	1-11-1	2-0-6	6-9-2		7-9-2	5-8-4	4-7-1	
9	0-1-7	0-1-7	6-1-2	6-8-2	6-11-6	7-1-0	7-1-1	7-1-4		1-3-2	1-7-6	1-11-5	2-2-4	2-4-1	6-9-0		7-4-6	5-3-0	4-4-0	
10	0-1-7	0-1-7	4-2-7	6-1-4	6-6-0	6-7-7	6-8-3	6-8-6		1-3-1	2-3-0	2-6-0	2-8-1	2-9-7	6-9-0		6-10-0	4-7-3	3-9-4	
11	0-1-7	0-1-7		5-4-6	5-11-0	6-1-1	6-1-4	6-2-1		1-3-0	3-3-4	3-3-4	3-3-5	3-4-0	6-9-5		6-3-6	4-0-0	3-1-4	
12	0-1-7	0-1-7		4-6-0	5-2-1	5-4-5	5-5-2	5-6-0		3-5-0	3-5-0	3-6-0	3-7-1	3-8-1	6-10-3		5-8-0	3-6-4	2-9-6	

Table of offsets for Gertie Lee, a 50-foot motor houseboat

The Way We Would Do It

Conducted by F. W. Horenburger and A. E. Snyder

EVERY month MoToR BoatinG's staff of experts answers thousands of inquiries about boats, engines, accessories and, in fact, everything marine. There's hardly a branch of the sport or industry on which they are not constantly being asked to give their opinions. They are very glad to do this, as well as to be of whatever service they can to MoToR BoatinG's subscribers and readers.

Quite naturally, many requests for information are received on subjects which are not of universal interest to every motor boatman. This, as well as the fact that it would be a physical impossibility to print answers to all questions received, makes it necessary for us to follow the rule of only printing answers to the few most important and interesting questions. However, we always give a reply by mail, so if you are perplexed about any questions pertaining to boating, don't hesitate to write to "The Way We Would Do It" Editor.

I AM expecting to build a 35-foot cruiser for use on an inland river and am using plans by a well-known naval architect. It is my intention to use a Hudson Super-Six automobile motor but have heard that automobile motors do not give satisfaction in motor boats. Please advise me about this.—H. H. G., Danville, Ill.

An automobile motor is not to be recommended for marine service. The Hudson motor you refer to, while an excellent engine for automobile use, is poorly suited to a boat. It develops its maximum power at from 3,000 revolutions upwards and there are no propellers made which could drive a cruiser efficiently at such a high rate of motor speed. The only way in which this motor could be used at all would be by means of a reduction gear so that the propeller would turn at from 700 to 800 revolutions, while the motor developed its maximum power at 3,000 or more.

Automobile engines are designed to set level, or nearly so, while marine motors are seldom set level. The splash system of lubrication used will be unsatisfactory in a case where the motor is not set level. The oil will flow to the lowest cylinders and flood them while the high cylinders will receive very little.

The general construction of the base pan in the automobile motor is simply a light steel stamping and the oil drainage plugs are in the bottom of this and inaccessible when the motor is mounted as is customary in boats. The crankcase plate of an automobile motor is at the bottom of the base, while those of marine motors are at the sides. You can readily see the disadvantage of being obliged to get into the

base from the bottom. This would be practically impossible in the majority of engine installations in a boat.

The flywheel is at the after end of the motor and will be troublesome to provide for in the installation of the motor.

The main crankshaft bearings are in general too few and too light for marine service. Marine motors of the best grade are equipped with one crankshaft bearing between each pair of cylinders. No provision is made in the automobile motor for a thrust bearing or the addition of a reverse gear. Alterations would be necessitated to permit of the addition of these items.

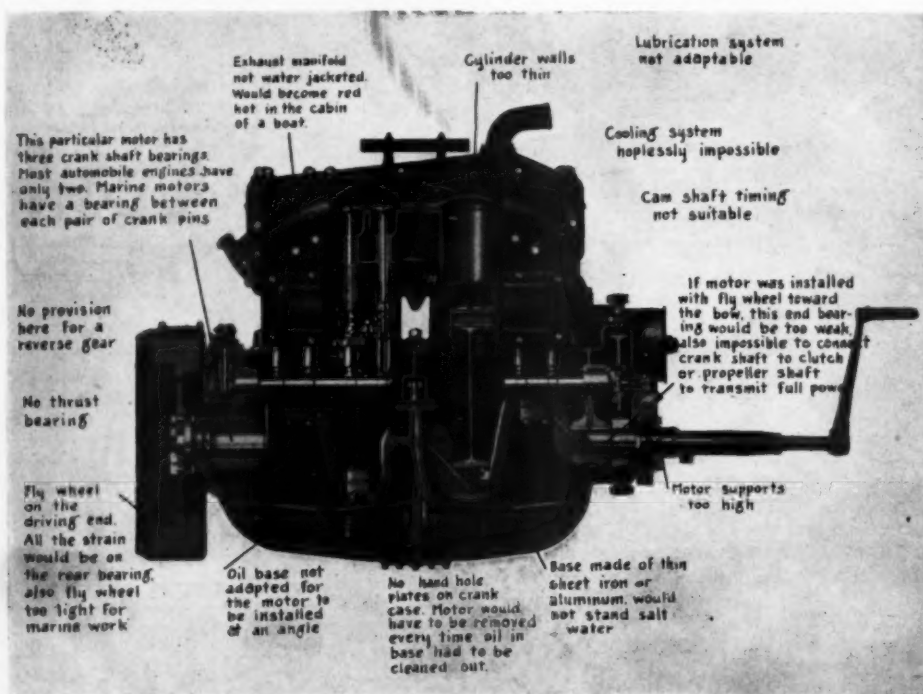
An air-cooled exhaust manifold would have to be replaced with the water-cooled manifold. The heat liberated in the manifold is considerable and a decidedly objectionable feature. An automobile engine runs best when fairly hot, but in marine practice the motors are allowed to run much cooler, mainly on account of the comforts of the people on the boat. The uncooled manifold is particularly objectionable when the motor is installed in an inclosed cabin.

The water-jacket and cylinder walls are much lighter than is customary in marine motors and when used in salt water the erosive action rapidly destroys the walls. The cooling system would require redesigning in order that a greater volume of water can be supplied to the motor. This probably means the addition of a larger pump. In order to operate at the slower speeds customary in boats, the contour of the cams would have to be changed to permit slower running and it is quite possible a lower compression pressure would be advantageous.

* * *

I own one of the old-fashioned glass-cabin launches, 45 feet long. The sleeping accommodations are poor and I wish to alter the arrangement for the better. These seats at present are 22 inches wide at one end and narrower at the other. The backs of these seats are panelled in mahogany and provide space for the windows to drop into. I wish to secure greater width and a way of using springs for the berths, if possible.—F. E. S., Boston, Mass.

The problem which confronts you is peculiar in that the spaces are not rectangular or uniform. We would suggest that an extension be made to fit on top of the present berths. This can be made so that it will readily pull out and enable you to secure a greater width for the



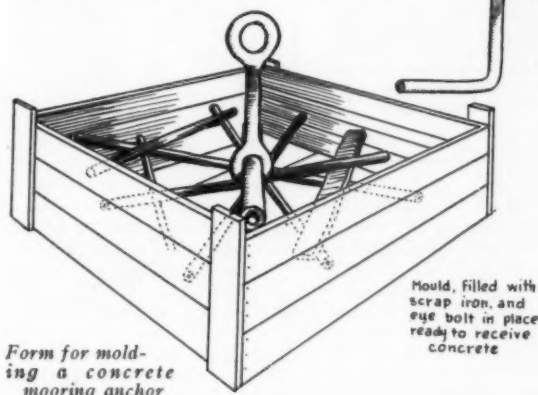
A few reasons why the automobile motor is not satisfactory when used in a boat

berth. A folding support can be made to fold up underneath as indicated. This would only come into use when the berth is extended. The cushions can be made with springs as desired and in two parts. The portion ordinarily serving as a back-rest will fill out the berth to its full width when in an open position. Dimensions for the sizes of the transom and cushions will have to be taken from the boat itself.

* * *

We would like to construct a mooring anchor out of concrete and do not know exactly how to proceed. Can you supply us with some information on this subject?—T. J. W., Bridgeport, Conn.

The principal point to remember when using concrete for marine purposes is that it is necessary to have a richer mixture than would serve for the same purposes when used only on shore. The simplest method of making a mooring of this material would be to construct a rectangular mould of any suitable boards and of a size to suit size of the boat. Concrete will weigh about 150 pounds per cubic foot and for a 30-foot boat a 200-pound mooring will be sufficient. For a 40-foot boat, 350 pounds and for a 50-foot boat, 500 pounds is ample. The volume of concrete required to come up to these weights



is not very much. A 500-pound mooring can be made 2½ feet square and 9 inches thick. A mixture of one part cement, two parts sand and four parts of broken stone will be satisfactory for this service. In addition to the eye-bolt or bent wrought iron rod to which is attached a mooring chain, some small pieces of scrap rods and bars can be imbedded in the concrete which will serve to tie the whole mass together. When continuously submerged there is very little deterioration in concrete structures. The destruction occurs mostly at or near the waterline when concrete is exposed alternately to the air and water.

* * *

Being an amateur fisherman, I have frequently the occa-

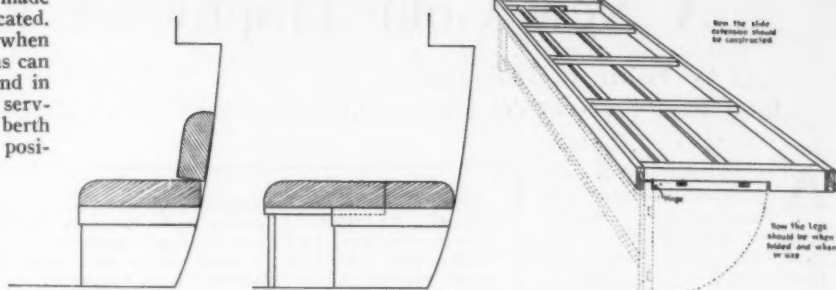


Scow the anchor, but plenty of scope should be paid out

String will break with an upward pull of the anchor rope—

and the anchor is raised with ease

Secure the anchor line to the crown of the anchor and lash it to the ring. A sharp pull will release the line and enable the anchor to come up freely



An extension to the transom to give wider berths

sion to anchor my boat on rocky bottom and have lost several anchors due to the flukes catching in crevices in the rock. Can you suggest any way of avoiding this and how I can recover my anchors when they become caught?—S. G. Y., Portland, Maine.

The simplest method of safeguarding an anchor against loss by catching in the bottom is to fasten the anchor cable to the stock near the flukes. A rope is laid past the ring but not through it. It is fastened at the ring by means of a light line and, if the anchor fouls, a heavy pull on the rode will serve to part the light lashing and enable the anchor to be hauled up flukes first. Should your craft be heavier and you fear that it will not ride out a blow when secured in this manner, an anchor rode can be attached as usual and a lighter line fastened to the anchor crown. This can be buoyed and in case the anchor refuses to come up, the trip-line will furnish a means of doing this conveniently. Bear in mind that when a line is wet it is heavier and the buoy must be large enough to carry it. In securing a rode at the anchor crown use a bowline, as the bight can be arranged under the shank, then over and around the flukes' arms, bringing a hitch on top of the shank.

* * *

Will you kindly advise whether it is still required to register motor boats with the U. S. Government, and if so, where do I have to apply?—R. B. W., Chicago, Ill.

The act providing for the registration of motor boats took effect on December 7, 1918, and was in no sense a war measure. From this date on, every undocumented motor boat, either pleasure or commercial, operated in whole or in part by machinery on the navigable waters of the United States, was required to be numbered. The process of obtaining a number is simple. Application should be made by the owner of the boat to the Collector of Customs for his district (preferably by mail) for a printed numbering form, which will be supplied on request. Two copies of this card should then be filled in and returned by the owner to the Collector of Customs. The information required will be the name and address of the owner, type of boat, that is, cruiser, open boat, houseboat, etc., length, beam and horsepower of the engine and the particular occupation of the vessel, whether it is used for pleasure, fishing, passenger service, or whatever it may be. The number assigned must be painted or attached on each bow.

A New Gold Trophy for Runabouts

Carl G. Fisher, of Indianapolis, with Gar A. Wood, of Detroit, Offer a \$5,000 Prize for a Real Free-For-All Displacement Boat Race—First Race at Detroit Next Summer

AT a meeting held at Indianapolis, October 15, 1920, at which were present Carl G. Fisher, H. R. Duckwall, A. C. Newby of Indianapolis, G. A. Wood, W. D. Edenburn, E. D. Purdy of Detroit, Webb Jay of Chicago, Arthur Utz of Buffalo and C. F. Chapman of New York, an offer was made by Carl Fisher and Gar Wood to present to the American Power-Boat Association a \$5,000 Gold Trophy to be competed for along the identical lines of the present Fisher Trophy for runabouts powered with stock marine motors, with the one exception that the boats may be powered with any type of internal combustion motor or motors, provided it has not more than 3,000 cubic inch piston displacement.

The conditions governing the new trophy, which will be known as the Wood-Fisher Gold Trophy, follow:

Any Club or Association in North America or any individual shall always have the right to challenge for the trophy and to run a match therefor, provided such challenge shall be made and such match shall be run in accordance with the terms and conditions of the agreement.

Matches for the trophy shall be run under the rules and regulations of the American Power-Boat Association governing sanctioned races, as adopted or amended at the annual meeting of the Association next preceding the race, unless otherwise provided in this Declaration of Trust. The match shall be for Displacement Racers.

The first match for this trophy shall be run at Detroit, during the summer season of 1921; the second match, at Miami, Fla., during the winter of 1921-22. Subsequent matches shall be run at a time and place selected as hereinafter provided.

The match shall be managed by a Race Committee of three as follows: The president of the American Power-Boat Association (Chairman), the secretary of the Racing Commission of the American Power-Boat Association and one other person to be named by the local club holding the race.

If this trophy be won three times by the same person or persons, it shall become his or their perpetual property and the terms and agreement of this declaration of trust will thereupon become null and void.

All challenges must be made in writing, and if made by a Club must be signed by the secretary (or proper official) of the challenging club, and must be forwarded to the secretary of the American Power-Boat Association. A copy of the challenge must be sent to the Secretary of the Club or person holding the trophy and a copy to the Secretary of the Racing Commission of the American Power-Boat Association. To insure a contest, one challenge must be delivered at least six months before the date set for the match. Subsequently, other clubs or persons may challenge and enter the same contest, but no challenge shall be received later than ten days before the date set for the first race of the month. In case no challenge is made or received six months in advance of the match, the Committee may at their discretion schedule the race and accept entries.

Carl G. Fisher, of Indianapolis, who two years ago offered a \$5,000 Gold Trophy to be raced for along entirely new lines tending to develop a useful and fast displacement runabout powered with a stock marine motor and which was competed for at Detroit in September for the first time and won by Rainbow with a perfect score in three 50-mile heats without repairs or adjustments, now comes forward and offers jointly with Gar A. Wood, of Detroit, a new trophy of equal value upon the same conditions as the old one except it will not be limited to boats powered with stock marine motors.

The first race for the Wood-Fisher Trophy will be held in Detroit next summer and the second at Miami during the winter of 1921-22. Such a contest as well as the one for the original Fisher Trophy open to runabouts powered with stock marine motors is bound to be very popular and will, we are sure, do much not only to create an exciting sporting contest, but to produce a large number of fast, up-to-date runabouts capable of speeds near the 50-mile an hour mark which will not be mere racing shells.

The motor boating world owes a great debt of gratitude to both Mr. Fisher and Commodore Wood for these magnificent trophies and their broad ideas and efforts to produce a boat worth while. MoToR BoatinG appreciates the chance it had to cooperate with the donors and to offer many suggestions for the governing conditions which were adopted, and which will surely be of great benefit to the sport and industry.—Editor.

Match shall consist of three races, to be sailed on consecutive days, excluding Sunday.

Courses shall be 50 statute miles in length.

Courses shall be laid in water of not less than 10 feet and shall be as free from turns as possible. The finish must be at the starting line. The length of each lap of the course shall be 2 miles or approximately 2 miles. The course shall be approved by the Racing Commission of the A. P. B. A., who shall have power to accept or reject same.

The start shall be a one-gun standing start, with a preparatory gun five minutes before the starting time. A flag shall be dropped by the starter one minute before the starting time. During the interval of time between the dropping of the flag and the starting gun boats shall not make headway through the water toward the starting line in a zone within 300

yards of the starting line.

Owners or their representatives shall draw for position previous to the starting of each race of the match.

The winner of the match shall be determined by the point system, whereby each boat entering and finishing a race of a match receives one point for entry and one additional point for each boat which she defeats, the winner being the boat scoring the highest aggregate number of points in all the races of the match. In computing points the maximum number of entrants shall be deemed racing each day and those that do not start shall be counted as defeated boats. A boat which starts in a race, but does not finish before one hour after sunset shall receive no points for that race, but shall be counted as a defeated boat in that race by the boats finishing. In case two or more boats have scored the same number of points for the series, thus establishing a tie, the match shall be awarded to that one of the tied boats which has covered the course in the best total elapsed time for three races. A boat not finishing any heat within one hour after sundown shall not be permitted to start in subsequent heats unless in the judgment of the Race Committee the reason for the boat's non-finish was not due to faulty material, design, workmanship or other reasonable cause, then the Race Committee may permit the boat to start in the next heat. However, the boat shall receive no points for the heat in which she did not finish, but shall be counted as a defeated boat for that heat.

Each Club or person challenging shall name its representative boat, or boats, and shall file a certificate of measurement of their representative boat, with the challenged Club or person holding the trophy and the Racing Commission of the Association at least ten days before the date set for the first race.

No club shall enter more than three boats for the match.

No boat shall be eligible to compete for this trophy which has since the year 1916 raced for a cash prize, or which has competed in or has been entered in any race where a cash prize was offered, or which at any time since 1916 has been entered in a race by a person who is not an amateur within

(Continued on page 72)

Yard and Shop

Notes of Interest to Both Owner and Manufacturer

Mullins Company will Continue to Use Kermath Motors

The Mullins Body Corporation have recently advised the Kermath Manufacturing Company that they propose to continue the use of Kermath motors as standard in their boats during 1921. Kermath motors have been standard equipment in the Mullins steel boats for over five years and the decision to continue their use was brought about by the splendid service the engines had given their customers.

Incidentally the Kermath Manufacturing Company announces that their prices are not coming down as they have not been inflated at any time. There has been no profiteering in the marine engine industry as in the automobile trade. No concerns have made fabulous profits and the price stampede started in the automobile industry is all very well but will not apply in the marine motor industry. Prices in general have been advanced only about 5 per cent at a time and they will go down in exactly the same way. The downward trend will probably extend over a period of several years and marine engine buyers who hope to save money by waiting until the spring are very much mistaken.

Motor Boat Show Only Six Weeks Off

The date for the next motor boat show has been definitely set and the show will be held this year at least two months earlier



The Cruiser Narragansett owned by Commodore W'm. J. Blake of the South Shore Power Boat Club of Chicago was the winner in the Dead Reckoning Race held by that club on September 18th. The race was a test of skill and reliability of the power-plant. Narragansett's Niagara motor did not vary two revolutions during the entire race



Fred Whitfield of Put-in-Bay writes the Red Wing Motor Company concerning the motor installed in his boat Sweet Marie. "I wish to congratulate you for turning out such a motor as my model B 32-40 h.p. Thorobred. It answers the throttle well and at 800 revolutions drives my boat close to 12 miles. Run the Red Wing on any ticket and I will vote for it"

ready for occupancy and will shortly be occupied by all branches of the company. The new buildings cover six acres and the one-story building is equipped with a saw-tooth roof to afford ample light and ventilation. Increased production of the popular row-boat motors will be possible and it is planned to increase the production of boats designed particularly for operation in connection with outboard motors.

New Yacht Basin at Essex, Conn.

The Dauntless Shipyard, of Essex, Conn., has begun construction on a modern marine railway, yacht basin and storage sheds at North Cove, Essex. The depth of water is to be dredged to afford a minimum depth of ten feet at low water. The need for a yard and repair facilities on the Connecticut River has long been felt by boatmen in this vicinity. The new plant will fill this want and the equipment has been planned to take care of yachts and also work of the heavier kind, such as would be required on river and sound steamers. It is expected that the railway will be completed in time to take care of the fall hauling of the many boats in this region.

than previously. Beginning December 10th and extending throughout the following week to December 18th, motor boat enthusiasts will be permitted to study all the latest kinks and novelties in the motor boat game. Of course there will be new boats and new engines and many other new things which will be displayed here for the first time. As before, the show this year will be staged at the Grand Central Palace in New York City.

W. & J. Tiebout Issue a New Catalog

A new catalog, No. 18, has just been issued by W. & J. Tiebout and consists of 512 pages of well-illustrated descriptions of the many articles which are obtainable in their establishment. They will be glad to send copies of this book to any readers of MoToR BOATING who will take the trouble to request it.

Evinrude Occupies New Plant

The new plant of the Evinrude Motor Company at Milwaukee, Wis., is



The exhibit of the Pyke Motor and Yacht Company at the Canadian International Exhibition at Toronto. They handle representative makes of marine motors including the Sterling and build some of the finest boats and runabouts in Canada

Concerning Frisbie Price

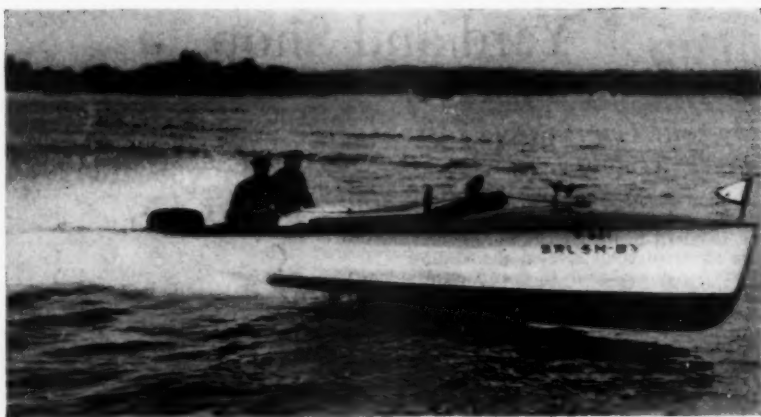
In answer to the question as to whether Frisbie motor prices were to be reduced a statement sets forth the fact that there is no indication of any reduction in the prices of raw materials. Labor costs are 50 per cent higher and it does not seem possible to ask men to work for less than they are receiving today. If there had been excessive increases in prices during the past few years it might have been possible to effect a reduction, but in common with other marine motor manufacturers, prices have been maintained at as low a figure as was consistent with good work. There is no possibility of any reduction in price for a considerable time and until conditions change materially the prices will be maintained where they are today.

New Koven Catalog

L. O. Koven & Brother, Jersey City, N. J., have just issued a new catalog giving full particulars of their various marine fittings and accessories. Tanks of standard and special sizes, together with mufflers and rudders and other galvanized articles are all listed and described.

Caille Clipper

Welcome is extended to the first number of the *Caille Clipper*, a breezy little house publication printed in Detroit by Caille Motor Company. MoToR BoATING adds its good wishes to those of all other friends of the Caille Company for the success of this little paper.



Brush-By, the fast little 26-foot runabout, powered with a six-cylinder Hall-Scott motor. Her owner, J. B. Sullivan, states that she can make close to 45 m.p.h. *Brush-By* is one of the Cinderella models built by the Reliance Motor Boat Co.

Cory's New Factory Finished

The new seven-story concrete building of Chas. Cory & Son, Inc., 183-7 Varick Street, New York, has been completed and is now occupied by this firm. The new building affords increased facilities for conducting the business and the manufacture of the numerous types of ship's communication systems in which they specialize. A permanent exhibit of their improved safety devices will be ready shortly.

This Winter's Races for the Fisher Trophy, Miami, Fla., February 10, 11 and 12

Wizard Magnetos Reorganized

The Hercules Manufacturing Company, headed by the Remy Brothers, have acquired the entire business of the Hercules Electric Company, manufacturers of the

Wizard Magnetos. The entire efforts of the new company are being devoted to building Wizard magnetos better than they have ever been built. Some new ideas for reliable ignition on small marine engines are being developed.

Modern Logging

G. F. Garrison has a mill at Mongaup Pond with considerable hard wood timber to cut and move. An outfit was suggested using an Evinrude motor for this work. The logs were floated, chained

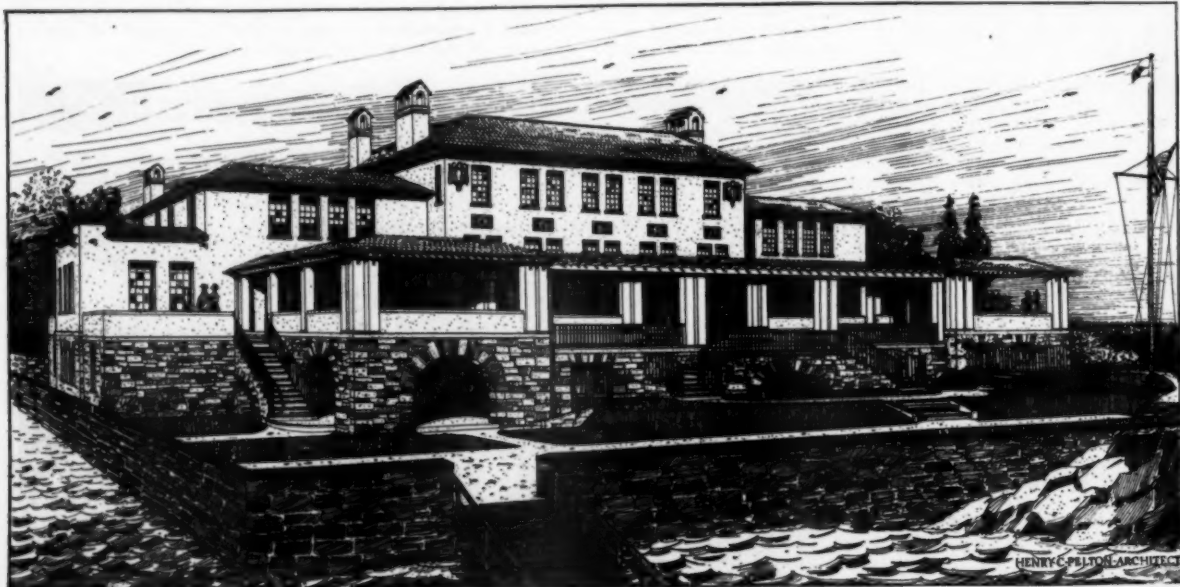
into rafts, and the Evinrude on a rowboat is successfully moving these to and from the mill.

Largest Engine Business Ever Experienced

Bruns, Kimball & Co., of 153-155-157-159 West 15th St., New York City, boast of the largest amount of actual engine business they have ever experienced since they were incorporated twelve years ago. They claim they can show several hundred orders on their books since January first for new engines, and also as many orders in their well-known Rebuilt Engine Department, which is open to the inspection of all readers of MoToR BoATING.

Navigation Classes

Instruction is to be given in Coastwise navigation, rules of the road, lights, buoys and kindred subjects in classes to be formed by the Hudson River Power Squadron at the Colonial Yacht Club, beginning Thursday, November 18th. Interested motor boatmen are invited.



The new home of the Indian Harbor Yacht Club at Greenwich, Conn., from the plans of H. C. Pelton to replace the old club house destroyed by fire last fall, is now nearly completed. It is planned to finish the building before snow flies. The Indian Harbor members are to be congratulated on the beauty of their new building as well as its comfortable interior and appointments.



VALENTINE'S VALSPAR

The Varnish That Won't Turn White



CENTURY BOAT CLUB

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St. Louis, Dec. 19, 1919.

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456 Fourth Avenue, New York.

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You may be interested to know that we are great believers in Valspar Varnish.

The Century Boat Club holds a record of having won Thirty-three races in the last thirty-five starts it made. Each and every boat the Century Boat Club used in winning these races is finished throughout with Valspar Varnish.

We not only use Valspar Varnish on all of our boats, but the same is used in finishing the wood-work and floors of our Clubhouse where it stands the wear and tear to our entire satisfaction.

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L. N. Buder

Secretary.

VALENTINE & COMPANY, 456 Fourth Ave., New York Special Offer

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Dealer's Name.....

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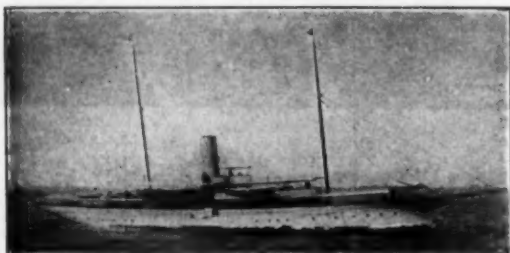
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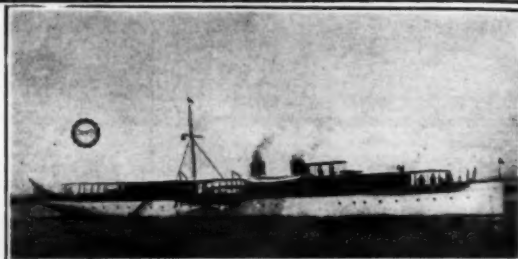
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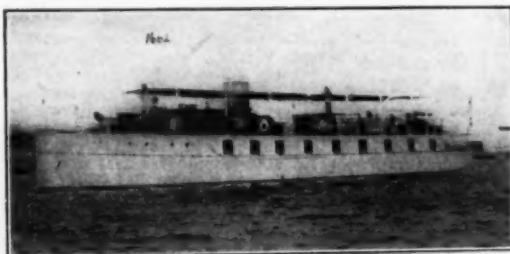
We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.



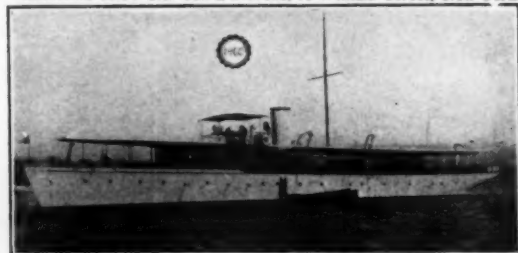
No. 71—For Sale—200 ft. seagoing steel steam yacht. Lloyd's highest rating. Cox & Stevens, 15 William Street, New York.



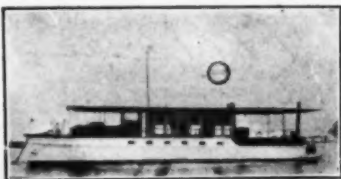
No. 3047—For Sale—Particularly attractive 165 ft. fast oil-burning twin-screw, steel steam yacht. Speed up to 19 miles. Beautifully finished and furnished. Large accommodation includes dining saloon and music room on deck, six staterooms and three bathrooms below aft. Cox & Stevens, 15 William Street, New York.



No. 1662—For Sale—Attractive 90 ft. twin-screw gasoline houseboat. Speed 10-12 miles. Large saloon, four staterooms, two bathrooms. All conveniences. Handsomely furnished. Cox & Stevens, 15 William Street, New York.



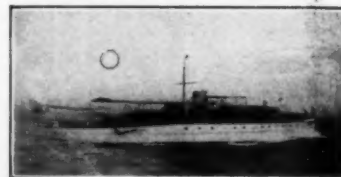
No. 1466—For Sale or Charter—Particularly desirable 140 ft. twin-screw steel cruising power yacht. Speed up to 18 miles; two 300 H.P. Standard motors. Dining saloon and social hall on deck; 3 double and 1 single staterooms, 3 bath and toilet rooms, etc. Recently overhauled thoroughly at large expense. In splendid condition. Cox & Stevens, 15 William Street, New York.



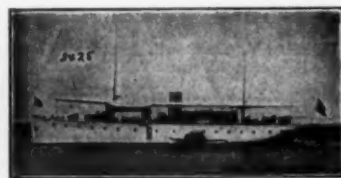
No. 2502—For Sale or Charter—Roomy twin-screw power yacht (houseboat type); 73.6 x 16.6 x 3 ft. Speed 11 miles; two 45 H.P. "20th Century" motors. Accommodations include two double staterooms and two saloons below, toilet room with shower bath, large deckhouse containing social hall and double stateroom. Ideal Florida cruiser. Immediate delivery. Cox & Stevens, 15 William Street, New York.



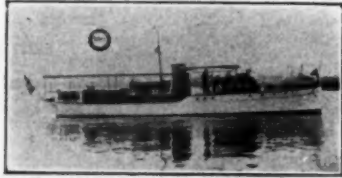
No. 979—Bargain—Especially desirable 98 ft. twin-screw cruising power yacht. Speed up to 16 miles; Standard motors. Deck dining saloon, three double and one single staterooms, two bathrooms, etc. Teakwood deckhouse and deck trim. Completely overhauled, new furnishings throughout. In commission. Cox & Stevens, 15 William Street, New York.



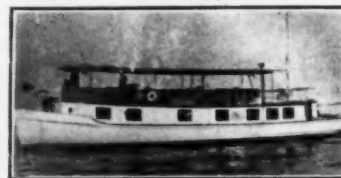
No. 2888 — For Charter — Twin-screw Diesel power yacht; 110 x 18 x 6 ft. Speed up to 14 miles; two 150-175 H.P. Craig-Diesel motors. Extremely economical to operate on account low fuel cost and small consumption. Excellent accommodation. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.



No. 2425—For Sale or Charter—Twin-screw cruising power yacht; 90 x 16.6 ft. Speed up to 12½ miles; two 6 cyl. 60/90 H.P. motors. Excellent accommodation. Cox & Stevens, 15 William Street, New York.



No. 3533—For Sale—Fast 72 ft. twin-screw cruising power yacht. Speed up to 17 miles; two 6 cyl. 125-150 H.P. Winton motors. Dining saloon, two double staterooms, bath and two toilets, galley, etc. Cox & Stevens, 15 William Street, New York.



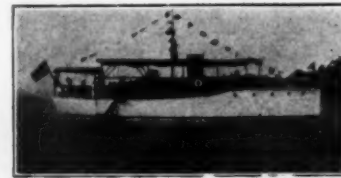
No. 2730—For Sale—Roomy power houseboat; 60 x 17 x 3 ft. Speed 8½ miles; 45 H.P. Sterling motor. Large saloon, one double and two single staterooms, two toilets, etc. Price reasonable. Located Florida. Cox & Stevens, 15 William Street, New York.



No. 1997—For Sale—Cruising power yacht; 81 x 12 x 4 ft. Speed up to 15 miles; 6 cyl. 100-120 H.P. "20th Century" motor. Dining room, three staterooms, toilet room, etc. Cox & Stevens, 15 William Street, New York.



No. 2564—For Sale—50 foot Elco bridge deck cruiser. Built 1917. Speed 12 miles 6 cyl. 60/85 H.P. Sterling motor. Double stateroom, saloon with upper and lower berths, toilet room, galley, etc. Price attractive. Cox & Stevens, 15 William Street, New York.



No. 3255—For Sale—Roomy bridge deck cruiser; 60 x 13.6 x 3.6 ft. Built 1916. Speed up to 11 miles. 40/50 H.P. "20th Century" motor. Completely overhauled 1920. Large saloon, two double staterooms, toilet room, etc. Excellent condition. Cox & Stevens, 15 William Street, New York.

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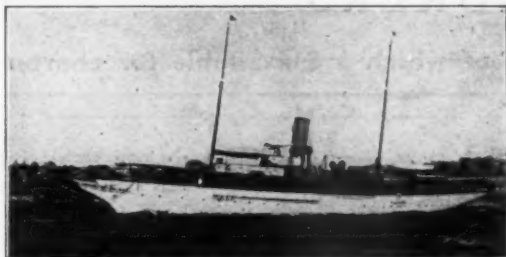
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Plans and specifications for new yachts of any size or type should be prepared now to assure delivery for next year. Have plans of new yachts, all types, on file now.

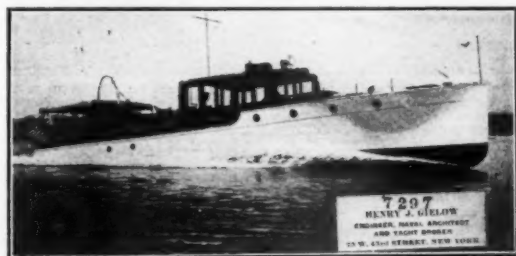
I have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats on file in my office, kept constantly up-to-date by a thorough and comprehensive canvass of the entire yachting field from time to time. I am in a position to submit full information on any type of boat upon request.



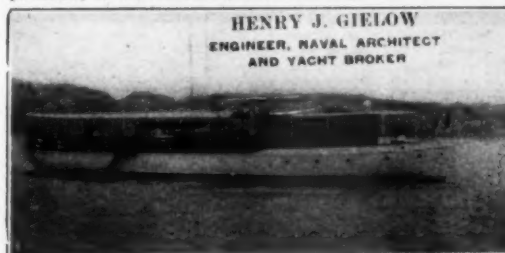
No. 9597—For Sale—Possibly Consider Winter Charter—Handsome 162 ft. seagoing steam yacht, second to none of her size. Finest condition and perfectly appointed. Cruising speed 12 knots. Steel construction, thoroughly overhauled and refitted throughout, 1919. Mahogany and teak trim. Deck dining saloon and music room. Large bridge deck. Two double and four single staterooms, 2 baths. Ice plant, steam heat. Large water supply and liberal cruising radius. Price reasonable for yacht of size and type. Henry J. Gielow, 23 W. 43d Street, New York City.



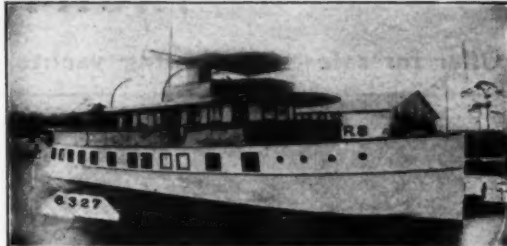
No. 8080—For Sale—Charter—New modern 85 ft. twin-screw cruising houseboat. Deck dining saloon and galley. 2 double, 3 single staterooms. Hot water heat. 3 baths. Shoal draught makes attractive type Florida cruising. Two 50 horsepower motors give speed 10 miles. Good sea boat. Henry J. Gielow, 23 W. 43d Street, New York City.



No. 7297—For Sale—Attractive high grade 48 ft. twin-screw express cruiser. New Van Blerck motors and upholstery 1920. Speed 21-24 miles. Excellent sea boat though shoal draught, and desirable for Southern and Northern use. Two cabins and separate galley. Crew forward. Bridge deck enclosed in removable glass partition. Cockpit aft. Modern in all appointments. Henry J. Gielow, 23 W. 43d Street, New York City.



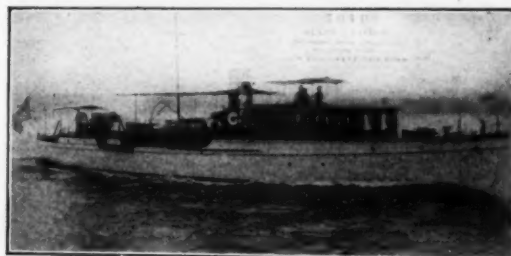
No. 7070—For Sale—Bargain—Attractive 80 ft. shoal draught twin-screw motor yacht, 14 ft. beam. Standard engines, all overhauled 1920. Speed 12 miles. Good sea boat and desirable for South. Four staterooms and main saloon. Galley and dining saloon in mahogany deck house. Good deck space. Completely equipped. Was not in Govt. service. Launch and row boat. Owner anxious to sell. Henry J. Gielow, 23 W. 43d Street, New York City.



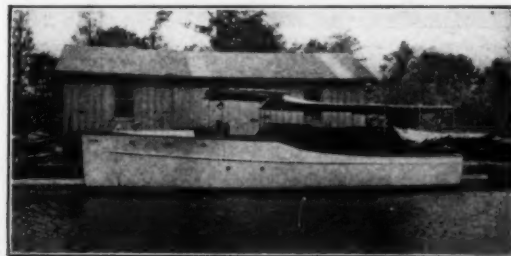
No. 6327—Sale—Charter—New 98 ft. cruising houseboat located Southern waters. Modern in design and appointments. 100 horsepower motor gives speed 10 miles. Hot water heat. Deck dining saloon and living room, also owners state room. Below are 2 double and 4 single staterooms. Most desirable type of Florida cruiser. Henry J. Gielow, 23 W. 43d Street, New York City.



No. 7089—For Sale—Price Low—Modern 78 ft. twin-screw motor yacht in finest condition. Entirely overhauled 1920. All new furnishings supplied. Accommodations are deck dining saloon, three staterooms, saloon and bath. Large galley. Standard motors. Speed 12 miles. Good sea boat. Owner purchased larger yacht reason for selling. Seen New York. Henry J. Gielow, 23 W. 43d Street, New York City.



No. 7040—For Sale—Bargain—Modern Lawley built 96 ft. twin-screw motor yacht, 15 ft. beam; Standard motors, speed 11 miles. Deck dining saloon, 2 double staterooms, accommodate seven. Economical, can run with 4 crew. Able sea boat. Furnishings new 1919, includes player piano. Large bridge and good deck space. Fine condition. Henry J. Gielow, 23 W. 43d Street, New York City.



No. 7597—For Sale—Reasonable—36 ft. bridge deck cruiser, 10 ft. beam; 30 inches draught. 30 horsepower 4 cycle high grade motor. All fine condition. Speed 10 miles. Stateroom and saloon sleep 4. Two toilets. Controls on bridge. Finished mahogany. Electric lights. Completely equipped. Located near Baltimore, Md. Henry J. Gielow, 23 W. 43d Street, New York City.

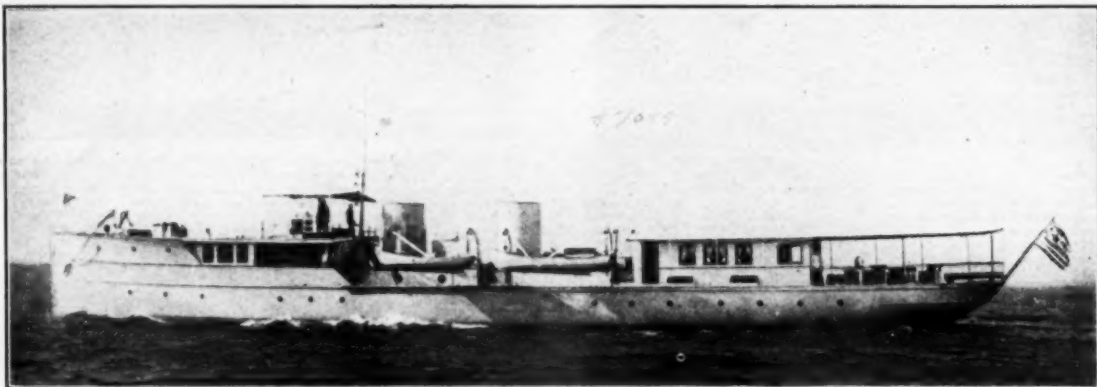
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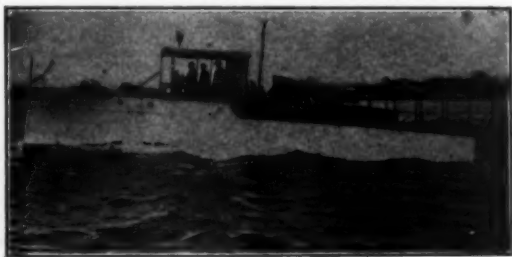
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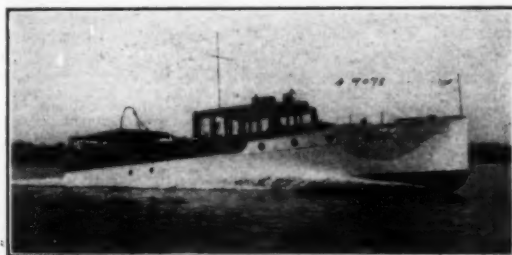
Offer for sale the following yachts, some of which are available for charter



No. 7098—Unusual opportunity to purchase the largest cruising steel motor yacht afloat—140 ft. overall—19 ft. 6 in. beam—6 ft. 6 in. draft. Designed by Tams, Lemoine & Crane and built by Lawley. An exceptionally able yacht. Triple screw having three 6 cylinder Speedway motors. Gasoline consumption low. Speed 16 miles per hour. Large cruising radius. Has very commodious owners' quarters attractively fitted and furnished. In absolutely A-1 shape throughout.



No. 7474—Sale—Brand new fast cruiser; 2-6 cylinder Sterling motors; speed 21½ miles; all modern conveniences.



No. 9078—Sale or Charter—Fast 48 ft. express cruiser in commission. Immediate delivery—2 new 6 cylinder Van Blerck motors. Good accommodations. Thoroughly overhauled this year in all departments.



No. 8102—Sale—Charter; most desirable raised deck cruiser available; practically new, 81 ft. x 13 ft. x 5 ft. draft. Speed 15 miles, electric light, hot water, heat and refrigerating plant.



No. 1902—Sale or Charter—In Florida. Most commodious houseboat of her length available; 64 ft. x 17 ft. 6 in. x 3 ft. 2 in. draft.



No. 7992—For Sale—Modern steel motor yacht. 115 ft. 7 in. x 17 ft. x 5 ft. 3 in. draft. 2—100 H.P. Standard motors. Speed 15 miles. Commodious owners' quarters.



No. 1927—Sale—Charter—Very desirable, twin screw houseboat; 5 staterooms, 3 bathrooms, dining saloon, lighted by electricity and hot water heat.

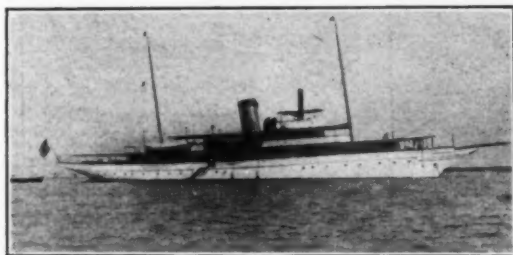
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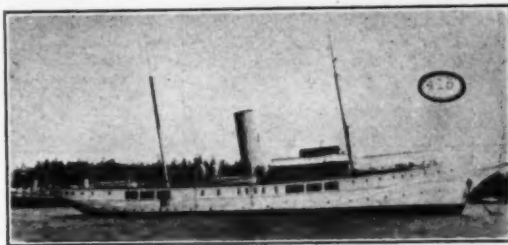
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We have a complete list of all Steam and Power Yachts, Auxiliaries and Houseboats which are offered for sale and charter.

Plans, Photographs and full particulars furnished on request.



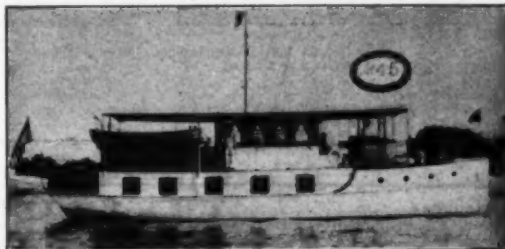
No. 111—For Sale—188 ft. steel steam yacht. Wonderfully well appointed. Excellent condition. Commodious accommodations. Modern in every particular.



No. 415—For Sale or Charter—Thoroughly modern twin-screw steel steam yacht. 210 ft. x 32 ft. x 13 ft. draft. Recently built in Scotland to Lloyd's highest class. Excellent seaboat. Equipped for extensive cruising. Cold storage, wireless, etc. Cruising speed 11 to 12 knots.



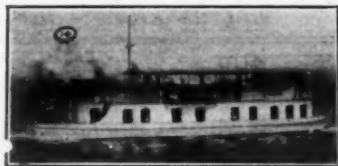
No. 30—For Sale—Low Price—Fast twin-screw power yacht. 105 ft. x 15 ft. 5 in. x 4 ft. 9 in. draft. 3 staterooms, two bathrooms. Speed up to nineteen miles. Standard motors.



No. 945—For Sale—Mathis 52 ft. houseboat. Launched in December, 1919. Is practically a new boat. Furnishings, etc., are of the best.



No. 573—For Sale or Charter—91 ft. x 14 ft. x 4 ft. 3 in. Twin-screw gas yacht. Winton motors. Speed up to 17 miles. Roomy accommodations with every convenience. In excellent condition, fully equipped, modern.



No. 14—For Sale—70 ft. twin-screw, Mathis built houseboat. 18 ft. 6 in. beam, 1 ft. 6 in. draft. Three staterooms, bath, dining saloon. Sterling motor installed 1915. Speed 10 miles. Well equipped and in good condition. Price very reasonable.



No. 971—For Sale—35 ft. Speedway runabout. In excellent condition. 150 H.P. Speedway motor, electric starter. Speed 27 miles. Mahogany planking and finish. Batten seam construction. Fully equipped with top, windshield, etc. A rare bargain.



No. 986—For Sale or Charter—1919 twin-screw cruiser. Houseboat type. 62 ft. x 15 ft. 4 in. x 2 ft. 6 in. Sterling motors. Speed 12 miles. Attractively arranged and furnished. Excellent for Southern or River use.



No. 74—For Sale—78 ft. Lawley built cruiser. Winton motor. Two commodious double staterooms. Two toilets. Roomy deckhouse serving as dining saloon. A very able and modern boat.



No. 925—For Sale—52 ft. express cruiser. Speed up to 20 miles per hour. Accommodations consist of owner's stateroom, main saloon, galley, etc. Full equipment. Excellent condition.

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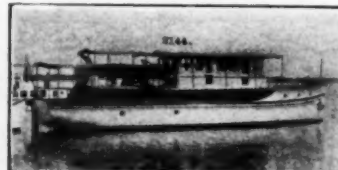
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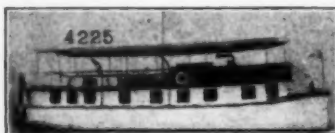
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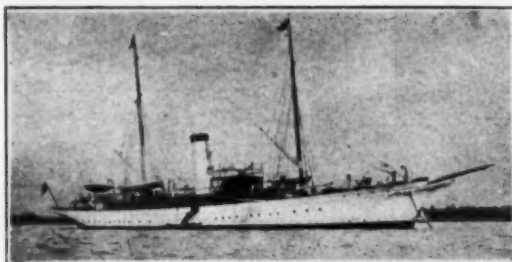
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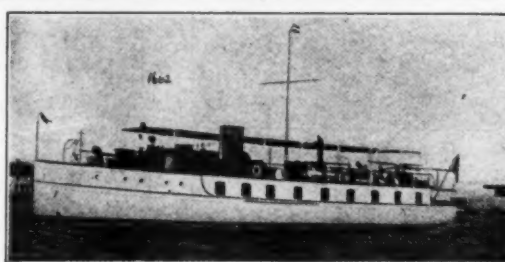
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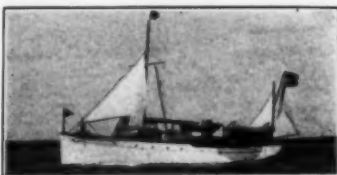
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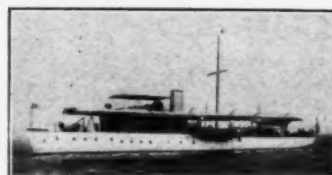
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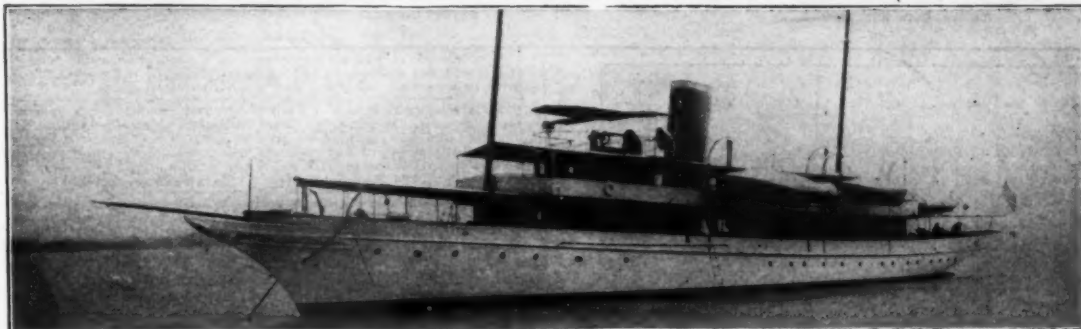
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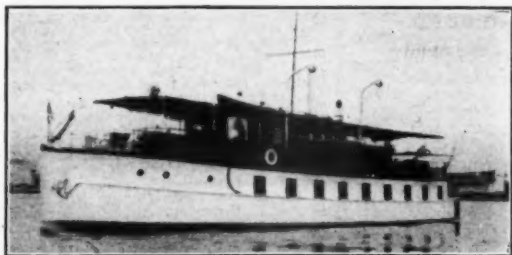
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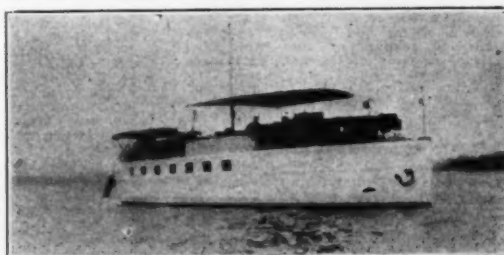
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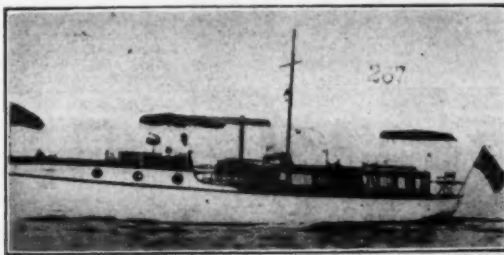
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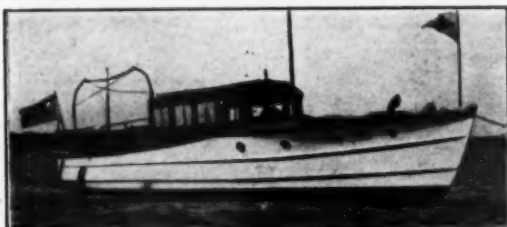
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Detroit Express Cruiser Championship Decided

(Continued from page 15)

another. Gar, Jr., II, the craft which won the Wood race for runabouts in Detroit is now a cruiser. Her power plant consists of two Smith marine twin six motors. Her owner, G. A. Wood, certainly uses his boat for cruising. There is no doubt about that. To reach Buffalo for the recent races he cruised in Gar, Jr., II. He met storm after storm on Lake Erie and came through safely and smiling when most of the regular ships on the Great Lakes were tied up waiting for better weather. Gar said the waves were at least 18 feet high. We believe him. Gar, Jr., II, with her 45-mile speed had no trouble in riding them.

Yet there are many people who still do not wish for an express cruiser of the Gar, Jr., II type. They prefer comfort to speed yet with a good turn of the latter. Therefore how is one who is charged with drawing up the requirements for the different types of cruisers going to define one type from another? It evidently isn't sufficient to say that a cruiser must have permanent berths, fixed plumbing, cooking arrangement and outfit for living aboard with cabin entirely closed in, either flush deck or self-bailing cockpit, etc., etc., as the rules now run. All these boats technically fulfill all the requirements of the rule. But are they cruisers in the general and ordinary meaning of the term? We ask for the opinions of our readers as a solution is beyond us.

However complex and uncertain the definition of a cruiser may be, one thing is certain and that is that Betty M and Olalen, which raced at Detroit in the finals for the express cruiser championship are both legitimate express cruisers in every sense of the word. No one, no matter how doubtful he may be as to the feasibility of applying extreme speed to cruisers or the use of lightweight, high-speed motors in these boats, will criticize one feature of either Olalen or Betty M. Both boats represent the type of craft which the cruiser rule intended to develop.

Olalen was built by the Great Lakes Boat Building Corporation of Milwaukee. She is one of their stock or standardized 54-footers, completely equipped in every particular, suitable to go anywhere, any time and certain of reaching there and getting home.

Betty M also is perfection itself. Raised foredeck, a large bridge, plenty of cockpit room and a comfortable and well proportioned cabin.

Both boats are powered with a pair of Van Blerck motors which drive the boats at a speed approximating 24 miles an hour. The power plants are well suited for this kind of express cruiser service.

The match race which was decided upon by the owners of the two craft, Messrs. Kotcher and Young to decide which was champion, took the boats from a starting line off the Detroit Yacht Club up to a point near the head of Lake St. Claire and return, a distance of about 40 miles. Both boats had been prepared for the match and were groomed so that each would obtain every last ounce of speed possible. Awning top, windshields, and to some extent the interior furnishings were removed and put ashore.

Both boats were handled by their owners and were over the line at the crack of the gun. Betty M immediately took the lead and held it for the entire distance finishing 7 minutes, 43 seconds ahead of Olalen.

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Let's Get a Few Ducks

(Continued from page 18)

is about the ideal thing to get you over the lake and to the blinds. Where should he steer her? Ed quizzed himself aloud and tried to see how the sky would appear when the inky curtains pulled aside. Wind in the nor-east meant that Dryland Point at the mouth of Big Bay was the location for us. So he aimed the merry gasboat south-east and opened her up. Out around the point of land on which is located the big ice house of the People's Ice Company we cut through the wall of black ahead of us and then swung directly north to cross the mouth of the bay. There are two points below Dryland but Ed thought this best for the way the wind was pulling. In earlier season he might have motored us to the next point along the north shore, Deer Point, or to another equally as good known as Nyles Point. The way things stood our pilot pointed for Dryland just where the bay by a jet of land is separated from the main body of water.

We pulled the motor boat into the reeds back in a cove and then climbed into the little craft to row out to the very point of land where the blind was located. The first ceremony was to put out the wooden deceivers and then Ed opened the live decoy box and planted a big Mallard drake. While he was doing this the female Duck poked her head out of the box behind our guide, smelled of the air, took into consideration the moisture of the water and then flopped out of the boat and into the lake a free bird. Ed pulled the little craft here and there chasing her but she was too elusive even with her wings clipped and we wasted ten good minutes in vain. What the chorus was to the little refrain that we three hunters sang is a matter that does not need to be here printed. The decoy would stay with her captive mate, was Ed's verdict, and the daylight was getting where it was ripe to get located in the blind. So we pulled to shore and Bill jumped out, gun all loaded, but he avers his toes were slightly cold, and I can add his fingers also. The long trip in the motor boat had chilled us down to beat all and remember the hour of day was zero.

Ker-splash! I glanced over my shoulder and there sat a big Black Duck right near the drake decoy acting real comradly like. My gun was empty, Ed was puttering with the grass about the blind, and Bill—well, what was Bill doing? He was whipping his arms trying to get up a quickened circulation. So the first Duck of the season just put the jinx right down along with the female's freedom, and then sailed for the sunny south. Ed and I made some more remarks but Bill was silent. His duck was winging itself away into the dim wall of the morning clouds. After that disheartening duckastrophe we forgot to be cold and were soon squatted in the blind, Ed taking the little row boat around with the motor and hiding it in the reeds. Bill was growling and I was laughing.

Whackety-whack-quack! Ran the tune of the decoys and we froze stiffer and stiller than a rabbit in his nest beside a log. Then we could distinctly hear a whistle of wing cutting air and Bill whispered that magic word, "Whistlers." Whistlers they were and they looked our decoys over and listened to their conversation just enough to come straight into the decoys without a single circle. Fairly fell head first into us. Then Bill said ready and I counted three. No one ever heard that count of three because our guns spoke together and two Whistlers fanned the air instead of the water with their feet. Right there the Prince's spirits rose several degrees. Over our heads came a black arrow and landed skimming along the water like the glide of an airplane to earth. It was a big Black Duck drake and he was much interested in our free female decoy. She kept up flirtations with him much to the anger of the decoy drake and they kept so closely together that we couldn't shoot.

Bill whispered that there was the Duck he lost on the start and that it was his now. For a time the female acted like she had adopted another mate and swam and fed all about in front of the blind with the wild boy. Then a cloud of Redheads drifted out of the north like confetti sprinkled against the morning sky and I looked in their direction. They settled lower and seemed looking for a place to feed in the mouth of the bay. They swung and circled. Would they see our decoys and come to them? The chances were not large but they might fly over our decoys and give us a wing shot that would mean a big kill before they got out of range. Ed had slipped into the blind after picking up the two Whistlers and we held our breath as the Redhead crowd swerved over toward our point. Would they come in range? They pulled over a little and Ed whispered that they would surely circle. If they should arrow over our decoy we might get tw—

Bang! It was Bill's gun! He had shot that lone Black drake and frightened the Redheads helter-skelter away from us just five seconds before they should have sailed in range where we could have got in several shots surely with a kill of a dozen

(Continued on page 68)



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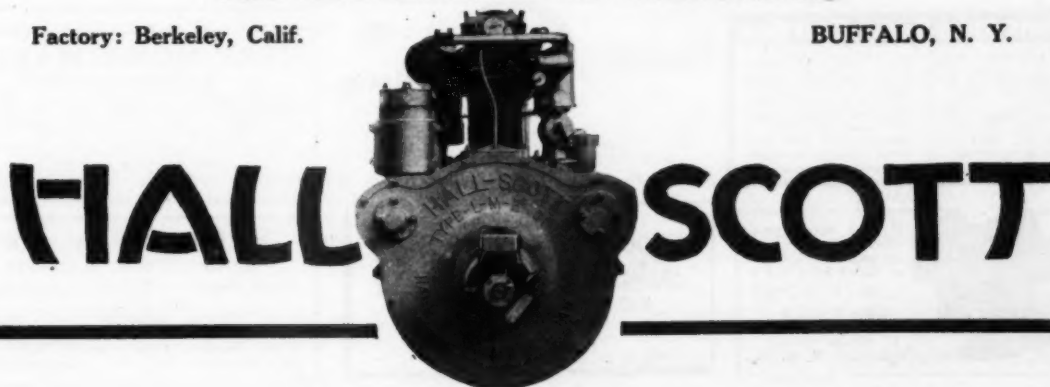
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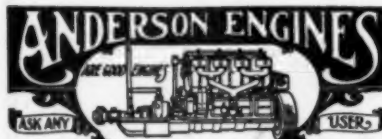
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(Continued from page 27)

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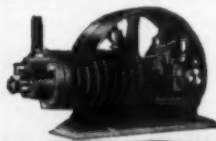
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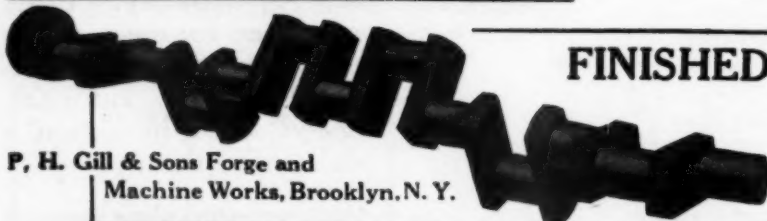
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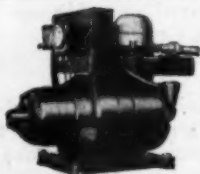
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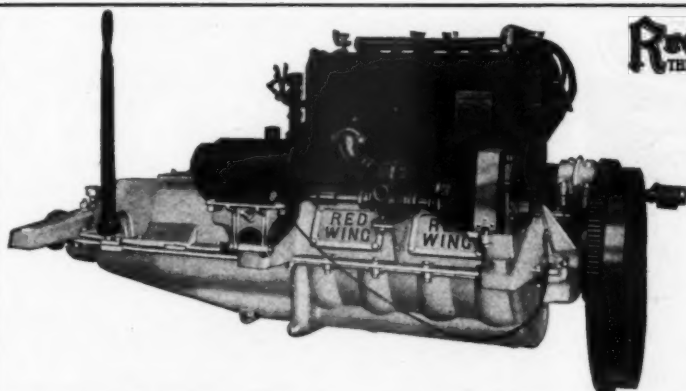
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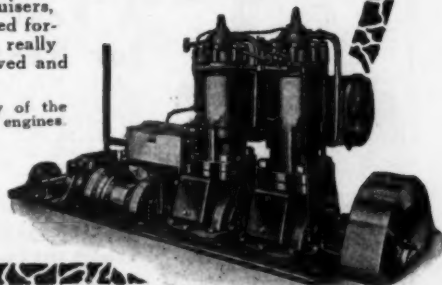
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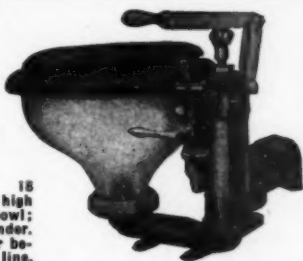
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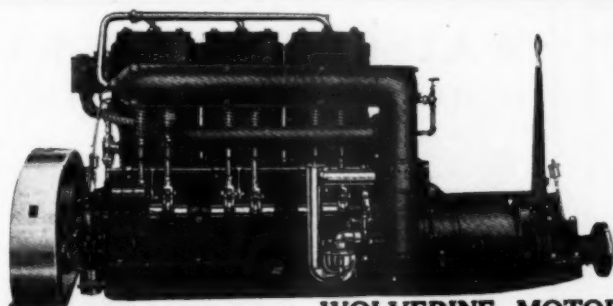
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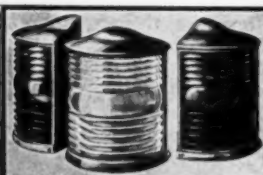
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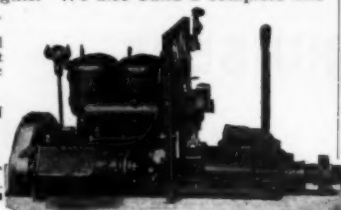
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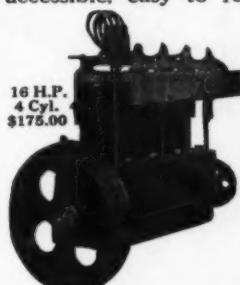
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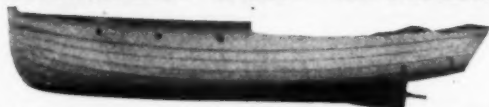
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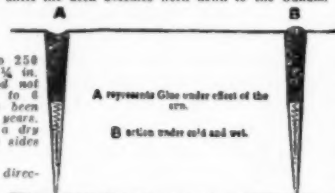
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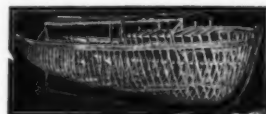


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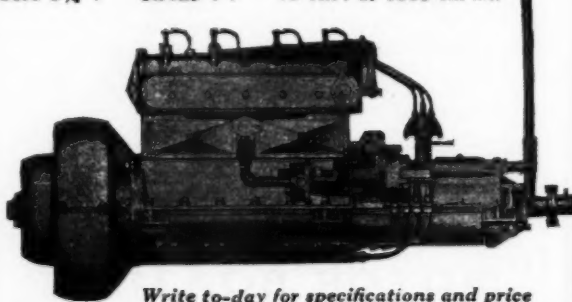
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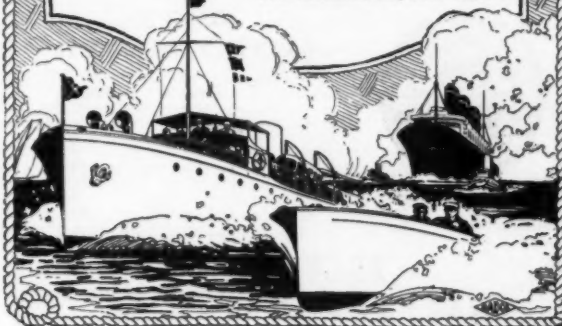
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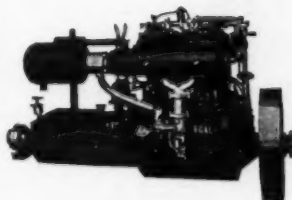
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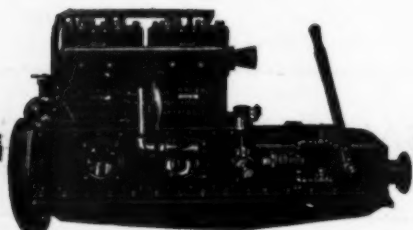
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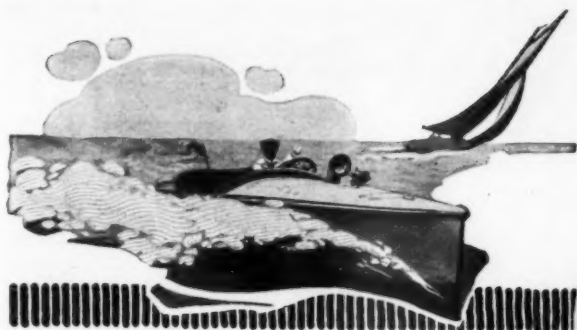
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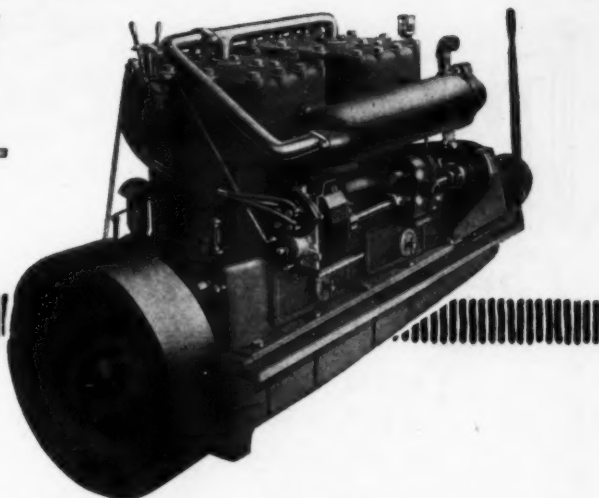
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shown here is one of the many products of WC manufacture. This Model M is a popular low priced Steerer especially recommended for small boats. It is equipped with spark and throttle controls, wooden drum, three spoke spider with laminated maple rim stained imitation mahogany.

We make a full line of Auto and Bridge Deck Steerers for runabouts, auto boats and cruisers—all products of that skillful workmanship that has made WC Dependable Marine Hardware world famous.

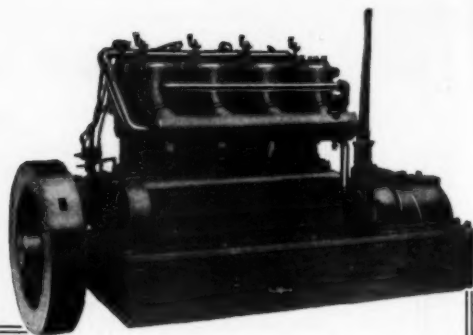
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American and Canadian Boats meet at Buffalo

(Continued from page 11)

of the gun, Miss New Orleans and Miss Toronto II immediately went into the lead upon even terms. Miss Peerless had trouble with a slipping clutch from the start and could only run her motor throttled down. Miss Toronto took the lead after the first two miles and was never headed. Miss

New Orleans completed about one-half of the course, but was compelled to drop out on account of gear trouble. Miss Toronto finished first with a speed of 52 miles per hour, and Miss Peerless came in somewhat later averaging 41.5 miles per hour for the 30 miles.

A complete summary of results will be found below.

Results of Buffalo Launch Club Regatta

American Power Boat Association Rules

Class for 4- and 6-cylinder Runabouts—3 heats of 20 miles each—Oct. 2 and 3, 1920:

Boat	Owner	Time 1st Heat (20 miles)	Time 2nd Heat (20 miles)	Time 3rd Heat (20 miles)	Total Time (60 miles)	Speed 60 miles	Best Speed 20 miles	Total Points
Brush By.....	J. B. Sullivan.....	34:44	34:19	38:25	1:47:28	33.6	34.9	15
Leopard V.....	G. Clark.....	34:55	34:37	42:10	1:51:42	32.2	34.7	10
Bear Cat.....	E. M. Gregory.....	40:50	39:36	39:33	1:59:19	30.2	30.4	8
Over the Top.....	H. Birge.....	DNS	37:43	38:30			31.9	7

Class for 12-cylinder Runabouts—2 heats of 30 miles, 1 heat of 20 miles—October 2 and 3, 1920:

Boat	Owner	Time 1st Heat (30 miles)	Time 2nd Heat (30 miles)	Time 3rd Heat (20 miles)	Total Time (80 miles)	Speed 80 miles	Best Speed One heat	Total Points
Miss Nassau.....	C. B. Johnston.....	41:07	38:53	24:35	1:44:35	46.0	48.8	15
Sure Cure.....	J. Strasburg.....	42:02	39:37	24:40	1:36:19	45.2	48.5	12
Heldena II.....	F. R. Miller.....	42:26	42:38	26:56	1:52:00	43.0	44.5	9
Clarie II.....	A. Rogers.....	46:11	45:10	27:04	1:58:25	40.5	44.2	4

Class for Hydroplanes—I heat 30 miles—October 3, 1920:

Boat	Owner	Total Time	Speed	Points
Miss Toronto II.....	F. G. Ericson.....	34:38	52.0	4
Miss Peerless.....	E. L. Grimm.....	43:26	41.5	3
New Orleans.....	Southern Yacht Club..	DNF		0



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A New Popular Size

Knox Valve-in-Head Motor

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The new engine is fully up to the high standard which has always been maintained in Knox productions. Advanced in engineering and embodying the newest and best of modern practice, this model will provide a really high grade and high efficiency power plant for the fast runabout and small cruiser.

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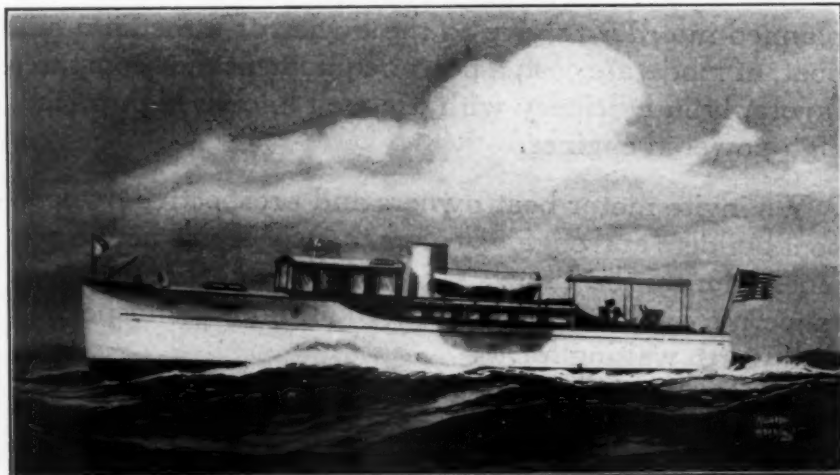
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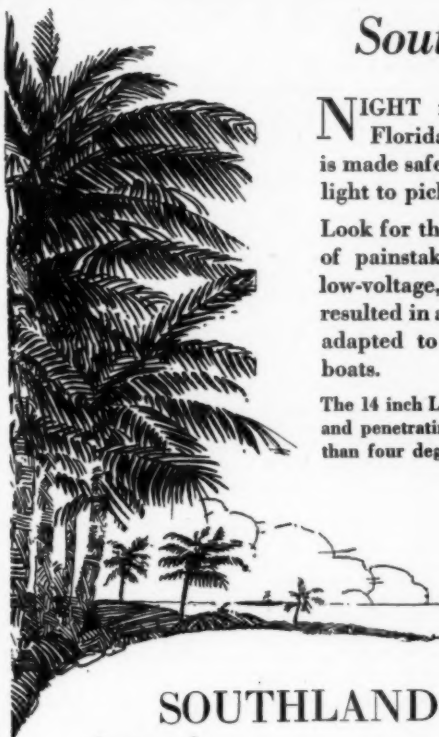
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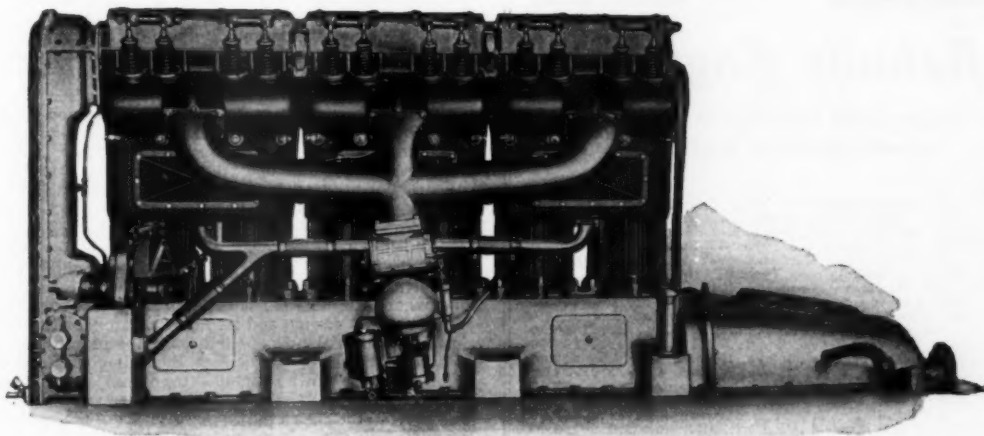
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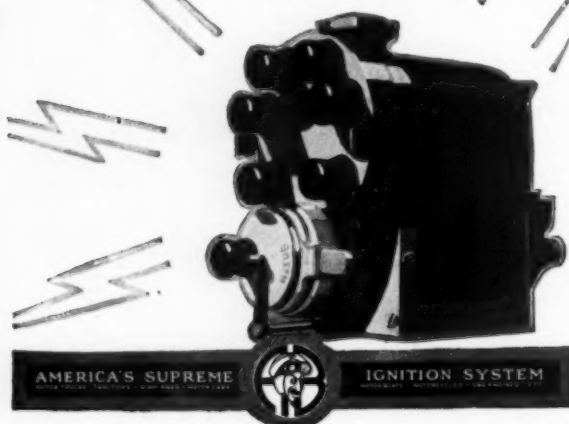
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Let's Get a Few Ducks

(Continued from page 48)

ducks. Bill insisted that he was so closely watching the Black Duck and waiting for him to get away from the female decoy for a shot that he never heard or smelled the bunch of Red-heads. We saw no more because they were the rear guard of Reds and should have been on their way south weeks before. Ed went out and picked up the Black boy and then Bill was mad because he hadn't waited and got a crack at the Reds. So goes the fun in a Duck blind.

With the bright light of day and the advent of the sun the wind died out and the Ducks became less and less in number. Bluebills streamed past far out like arrows of the air and were gone. Then all was quiet. Some lesser Duckdoms circled and passed on out of range. Then more quiet. The wind began to blow but had changed to the south. The Ducks were taking the south shore of the lake instead of the north under the altered conditions of the breeze. So we let Ed pull in the decoys and waded back to the motor boat. No use to stay here with the wind in the south. We shoved the motor out into deep water free from the reeds and then remembered the decoy that was swimming about loose. Ed was having a merry-go-round and he damned game with her out at the point. So we went back to help. Standing in the shallow water and ready, Ed drove her near enough so she could be picked up, but it was a trick of half an hour to do it.

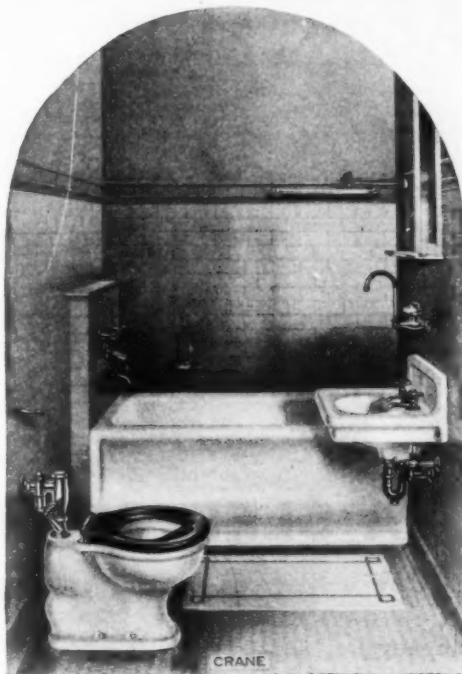
Then we tied the rowboat fast and throbbed out across the mouth of the Big Bay and over to the south shore. There was a boat making for the very blind we were after and it was nip and tuck who should get there first. First comes, first served applies to all the blinds along the lake and Ed opened up her throat wide. We won by a hundred yards in spite of taking a chance of losing half our duffle from the rowboat, which bounded about like a rubber ball, dodging to one side and then the other of the big swell behind our propeller.

In ten minutes we had the decoys out, the live ones tied in shape this time, and the boats hidden. A big lake barge steamed up the lake out of the river, following the bed of the barge canal through Oneida, and this stirred up a big commotion that resulted in Ducks rising from feeding grounds all along the line. They went past us in singles, pairs, sixes, and clouds; all out too far. Then some brown headed Whistlers listened to our decoys and swung over to give a social call. The best we could do was to wing a pair of them. Each promptly dove into the water, swimming out as fast as possible under water. When they came up we shot to get a pellet into the head and so stop the cripples. That's what I was doing with mine. Ed ran for the rowboat. Bill just kept growling, grousing, grumbling! Reason was his cripple kept behind that live decoy to the east end of the blind and swam safely to deep water before he could get in a shot that would be safe to the decoy and before Ed could get the boat out on the job.

Then there came that period of quiet when the lake looks deserted and you overtax the eyes looking for those tiny dots in the distance that may increase and develop wings until they are flying Ducks. It was lunchtime and we pulled the grub from the basket and opened the Thermos bottle with its hot coffee. Bacon sandwiches and coffee. In a Duck blind on Oneida. Nothing more need be said.

After noon but few Ducks seemed to be stirring and so Ed counseled that we go across to the north side again, as the wind had died down, and sit in the rushes near the big swamp. Along the northwest end of Oneida there is a wide expanse of swampland where the native Ducks are raised and toward night they pop out of the swamp and into the lake for a safe place to sleep. So we pulled in the decoys and gave the motor free head to cut us across the water to the dim shore line in the distance. We put Bill in the rowboat and shoved him into some tall reeds, where he sat as comfortable in seclusion as you please and waited for the Ducks to pile over into the water from the swamp. We put several decoys out in the water beyond him and then went on to locate ourselves at another likely place. The swamp is so big that one man can easily handle all that come over at any one place. Until dusk and darkness Bill's gun boomed and we tried to answer him from our blind down along the shore near where we had hidden the motor boat.

Then in the gloom Ed gathered in the decoys and the few trophies and we pulled down for Bill. It was a bad place to lose cripples in the reeds where we had left him and so his alibi was the environment, like so many failures toot it. But all the same he did have some nice Black Ducks to show for his noise. We picked them up and then voted that we had dropped enough feathers into Oneida for the day. So we putty-potted dockward and again battled with the wit of one William Schafer. The duffle was dumped into the car. Good byes sang out. And we were on our way to Salina Street.



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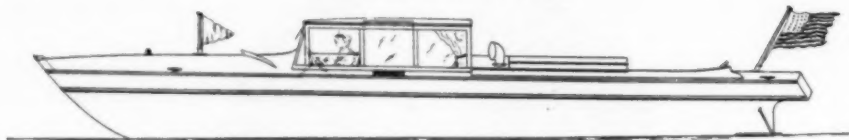
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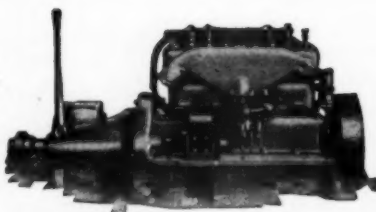
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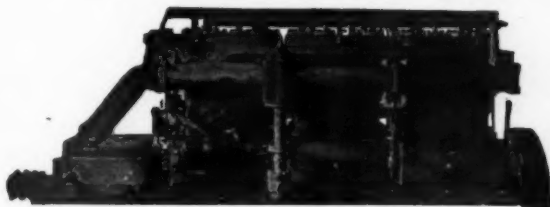
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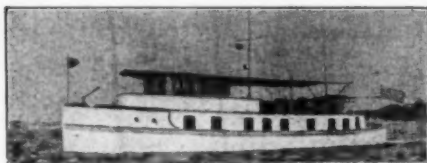
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(Continued from page 36)

the meaning of the American Power-Boat Association Racing Rules.

Measurement of boats must be verified prior to the match by the Measurer or the Assistant Measurer of the Association.

The minimum waterline length of a boat competing for this trophy shall be 32 feet.

The total maximum piston displacement of the motor or motors in boats competing for this trophy shall not be more than 3,000 cubic inches.

The form of power plant shall be one or more internal combustion motors.

Competing boats must exhaust at the stern close to the waterline.

Boats shall race without handicaps or time allowances.

Competing boats shall be fitted with at least three transverse bulkheads, have the motor compartment entirely closed in, and have seating accommodations for at least four persons.

The time of the start for each race of the match shall be 3 P. M. No postponements for any cause shall be allowed.

Each motor in a competing boat shall be fitted with an efficient self-starter and mechanical reverse gear.

Competing boats must demonstrate to the satisfaction of the Race Committee that they are capable of a speed of at least 35 miles an hour.

The hulls of competing boats must have no breaks in the longitudinal continuity of the immersed surface, not more than one lifting surface and must conform to the committee's ideas of what is generally classed as a Displacement type.

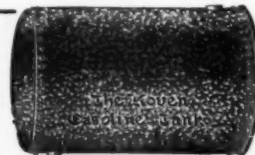
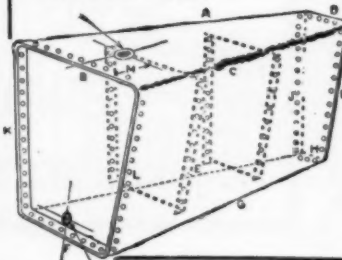
Rudders known as bow rudders may be used on competing boats, provided a stern rudder is also used.

Competing boats shall all receive their fuel from the same supply to be designated by the Race Committee.

Only minor repairs to hull, power plant and accessories shall be allowed. The Racing Commission of the A. P. B. A. shall designate what constitutes minor repairs. Allowable repairs shall be made only by members of the crew and shall be made during racing time. Parts and materials used for minor repairs shall be taken from those carried aboard the boat during the race. Exception: Should an accident cause injury to the propeller or hull which in the judgment of the Race Committee was not due to faulty material, design or workmanship, they shall have power to permit repairs to be made to such parts by the method most suitable in their judgment.

A boat upon crossing the finish line of any heat shall immediately report to the Race Committee and shall be under the absolute control of the Race Committee until 10 minutes before the preparatory signal for the next heat. During the time the boat is under the control of the Race Committee no changes, repairs, adjustments or work of any nature upon the power plant, hull or accessories shall be permitted, with the exception of fueling. Owners shall place their boats at the entire disposal of the Race Committee.

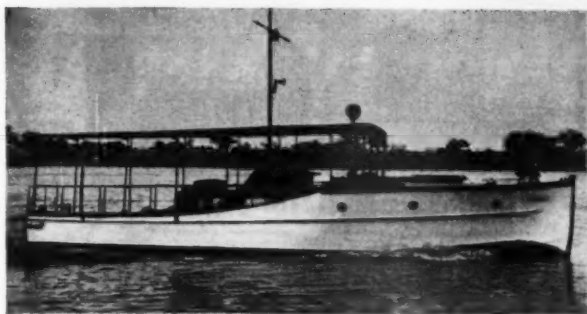
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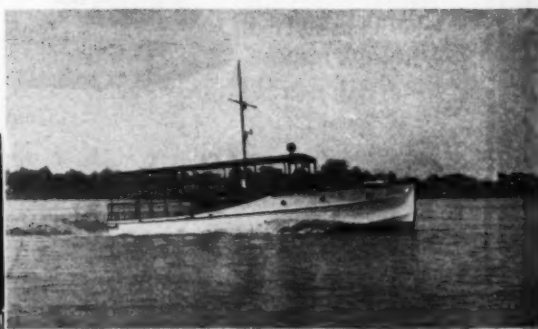
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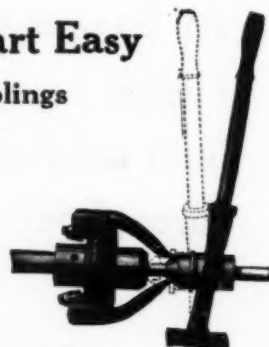
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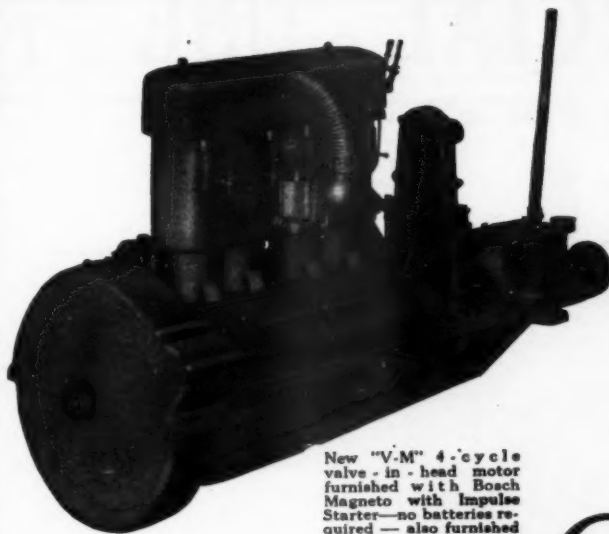
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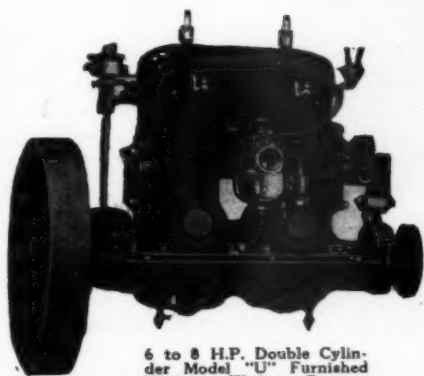
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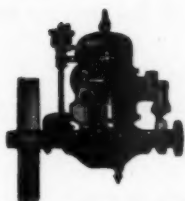


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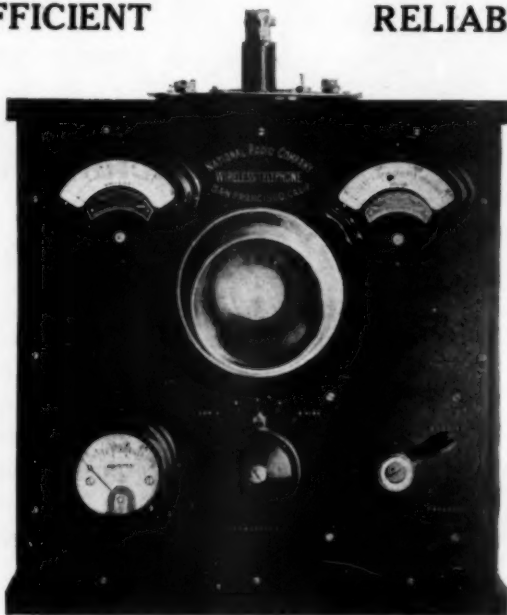
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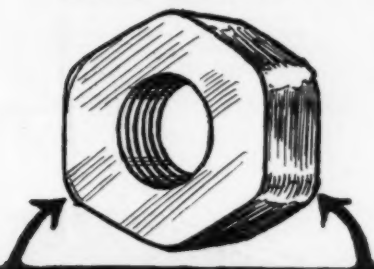
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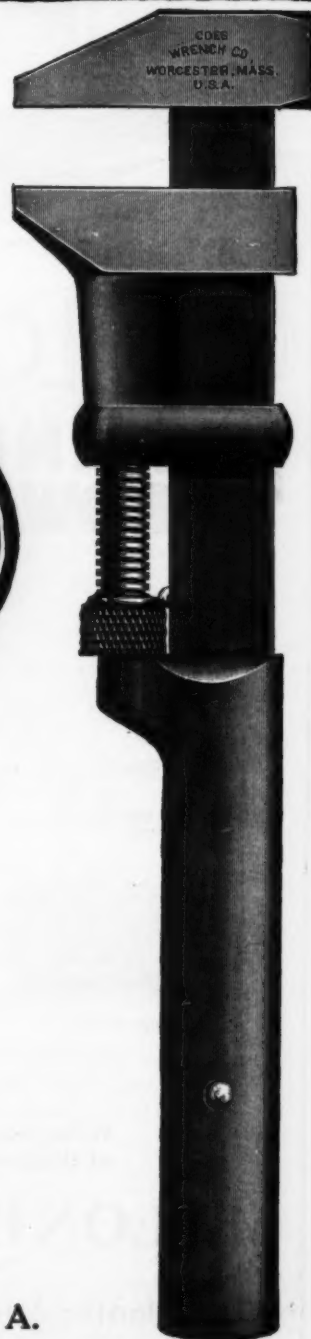


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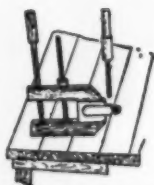
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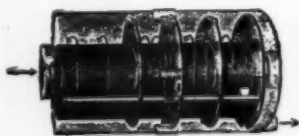
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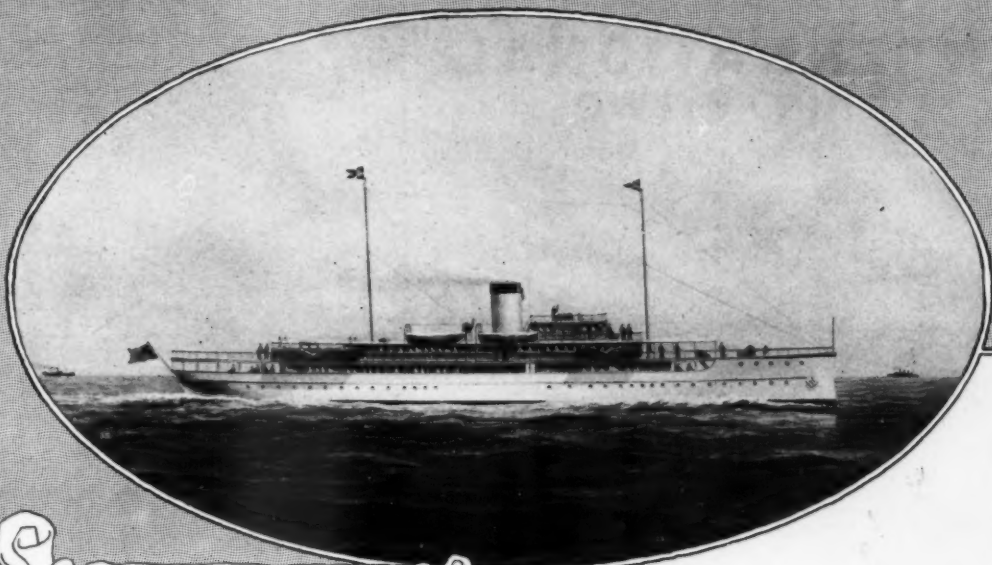
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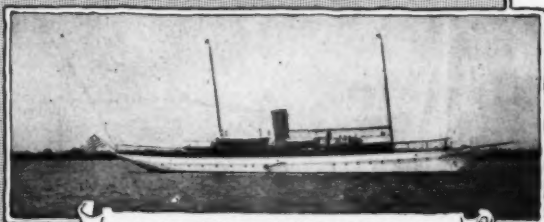
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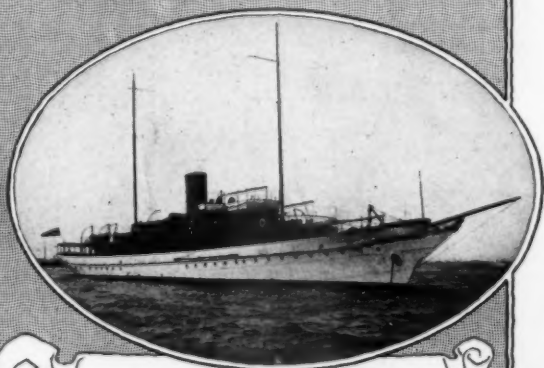
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The first Nokomis, built in 1914 for Horace E. Dodge by Robins Dry Dock and Repair Co., of Brooklyn. Designed by Henry J. Gielow. Clothel Equipped. Taken over by the government during the war.



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And it is the third one of Horace E. Dodge's fine yachts to install Clothel Refrigeration—a fact of much significance.

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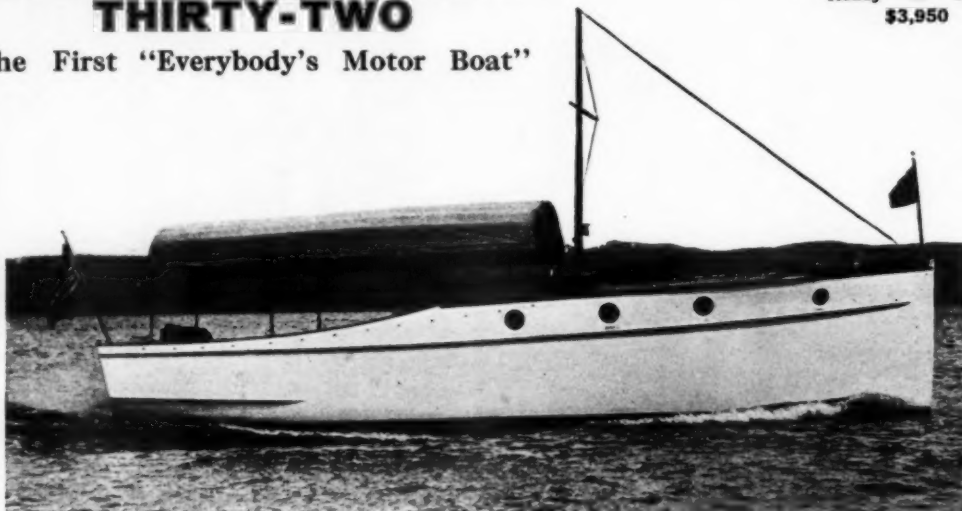
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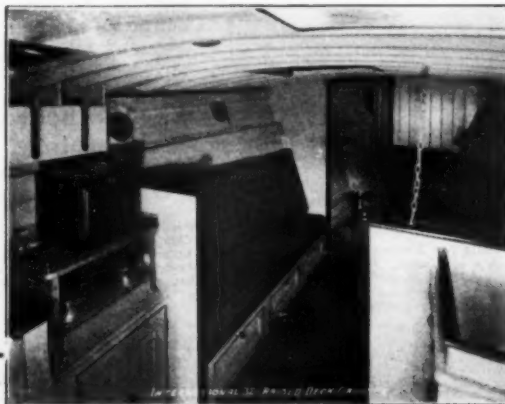
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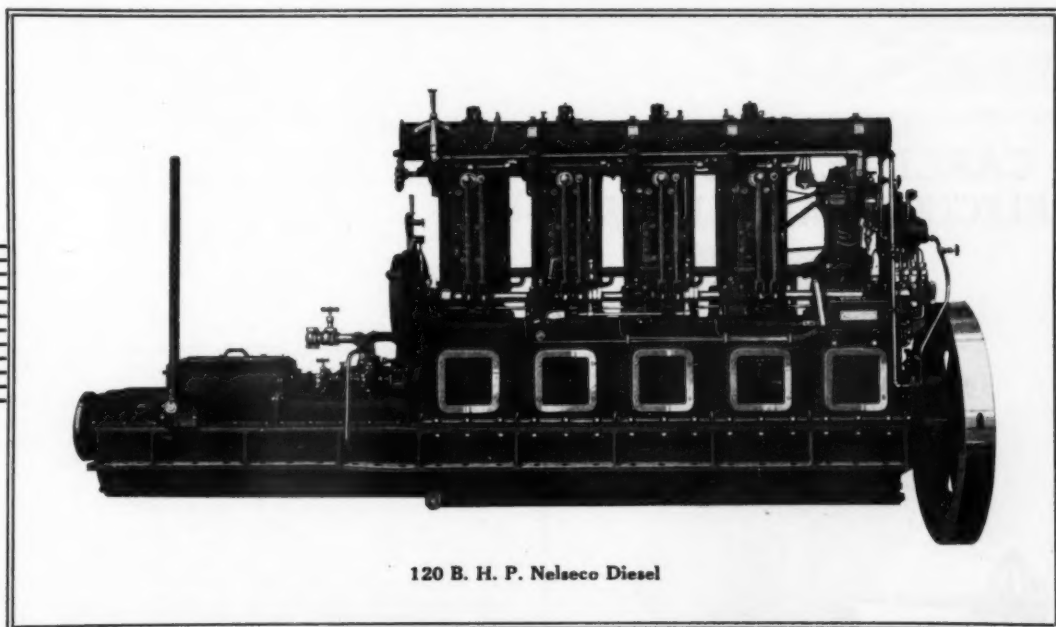
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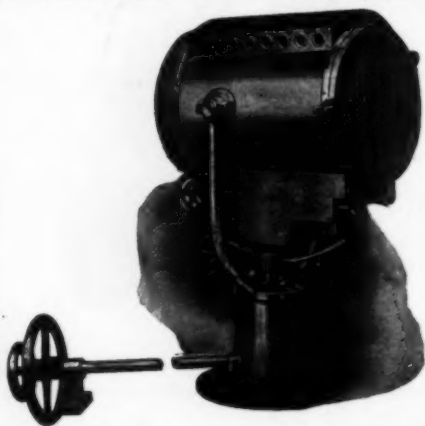
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"Shark," a Hand Utility Runabout

(Continued from page 25)

the usual manner. The center section to be removable parts of three or four planks cleated together and arranged to lift out. Flooring of same kind to be fitted in motor compartment with removable sections around engine to allow of getting at all parts below floor line level. Flooring to extend from station No. 1 to transom. To be fastened with brass screws.

Bulkheads: Main bulkhead to be of matched chamfered mahogany $\frac{1}{2}$ x 3 inches set vertically in the usual manner and backed by indicated ties or beams. Bulkhead to be fastened with 1-inch oval head brass screws symmetrically arranged.

Seats: To be formed as indicated. Forward seats to be of the divided type. To be formed of $\frac{7}{16}$ -inch mahogany as shown. Rear seats formed as indicated with forward ends supported on $\frac{1}{4}$ -inch mahogany legs.

Ribbands: Indicated ribband rail to be mahogany $1\frac{1}{2}$ inch in half round section, fastened as indicated, with screws properly let in and bunged with bungs of same material as rail. Fore and aft ends to be neatly tapered and rounded.

Bits: Oak bitt $2\frac{1}{2}$ x $2\frac{1}{2}$ inches in fore deck and a pair of quarter bitts 2 x 2 inches to be neatly formed and fitted where indicated. Same to extend through deck and 1-inch reinforcing block set under deck and secured to beam, with heels securely fastened below in the usual manner. Heads to be fitted with 8 x $\frac{1}{2}$ -inch brass pins in the usual manner.

Woodwork in General: All parts of hull outside and all exposed surfaces inside to be carefully planed off smooth and thoroughly sandpapered to give a perfectly smooth finish. All work to be done to the satisfaction of the owner, and all details of hull woodwork to be complete in every respect. Work not herein specified but that is shown on the drawings or is manifestly necessary to complete the boat in a workmanlike manner to be done without extra charge.

Metal Work

Rudder: Rudder to be Hand pattern No. 305 fitted with rudder port and 10-inch quadrant. To be connected to steerer with $\frac{3}{16}$ -inch phosphor bronze wheel rope lead over suitable bronze sheaves.

Stuffing Box: To be Mechanical Devices Co. Pattern K. S. No. 1 bronze to fit shaft, fastened on apron with $\frac{1}{4}$ -inch No. 14 brass screws.

Strut: To be a bronze casting Hand pattern No. 472 properly habbitted to fit shaft, to include strut and skeg in one piece. To be fastened through apron with six $\frac{5}{16}$ -inch brass stove bolts, with nuts inside and countersunk heads in plate.

Steerer: A Hall steerer to be properly fitted where shown, connected with rudder quadrant by $\frac{3}{16}$ -inch diameter phosphor bronze tiller rope lead over specified deck sheaves and through brass fair leaders, set under deck and evenly spaced between sheaves on each side.

Tank: Gasoline tank to be seamless tipped steel, 12 inches diameter by 24 inches long, set in a suitable strong spruce cradle, under deck as indicated. To be fitted with two swash plates and 2-inch filler plates piped to deck as shown.

Flag Staff Sockets: A pair of $\frac{3}{4}$ -inch flush type polished brass flag staff sockets to be fitted where indicated. A pair of 4-inch brass beveled bow chocks to be fitted on forward deck where indicated and a pair of 4-inch straight chocks on the stern.

In General: All details of metal work and hardware to be complete and all parts of polished brass. All fastenings not otherwise specified to be brass screws, and all inside joiner-work to be fastened with oval head brass screws.

Painting

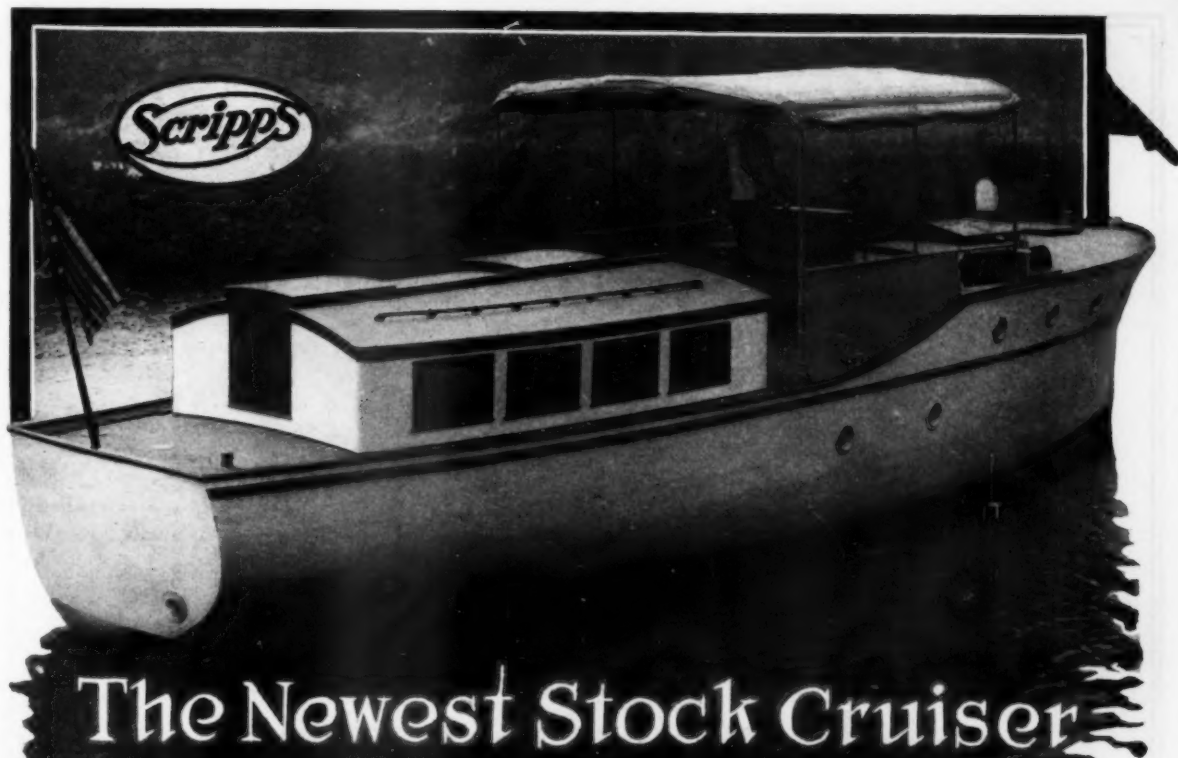
Entire inside of hull, to be painted with DeVoe's tan deck paint. Outside, below painted water line, to be painted with one coat of red lead and two coats of best quality green bottom paint. Topsides to be painted with four coats of white lead, mixed with lamp black in sufficient quantity to give a light gray color. Decking to be painted with three coats of light tan deck paint. Bulkheads, seats, flooring, curbs, ribbands, and all other parts of hull to be finished with one coat of wood filler and three coats of spar varnish.

Quick Action Necessary

(Continued from page 29)

water where the battens can be easily and quickly nailed on. A heavy piece of canvas battened down in this way will stop nearly all the water from coming in so the pumps will easily keep the bilge dry. Patched in this way the boat may safely proceed for many miles, possibly to her home port or at least to a place where repairs can be made. The writer once used heavy canvas battened down in this way on a boat that had been run down and the side cut down well below the waterline. By closely nailing the small battens (laths were used) below the waterline no trouble was experienced in keeping afloat several days.

C. H. C., Saginaw, Mich.



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The Burger 36-Footer

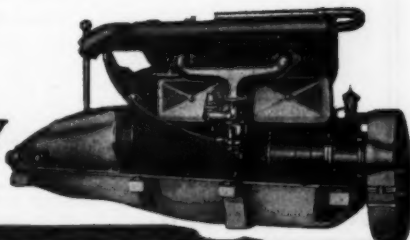
Mass production mastered through an honorable record on Government work during the War period, 30 years of experience in the building of high grade boats, and the genius of the veteran designer, Charles D. Mower, have been combined in a noteworthy contribution to the Motor Boat field. The Burger Boat Company of Manitowoc, Wisconsin, is now concentrating every effort on the standardization of a single type, high class, bridge deck cruiser—a safe, roomy, comfortable boat fully equipped with every modern device and convenience.

In keeping with the high standard established by the craft, nothing but an honestly good reliable power plant would do, the final choice being a SCRIPPS Model "D", 4-cylinder, 4-cycle, medium duty motor with electric starting and lighting system. Three of the leading builders of standardized boats have this past year adopted the SCRIPPS as standard equipment, based on performance rather than price.

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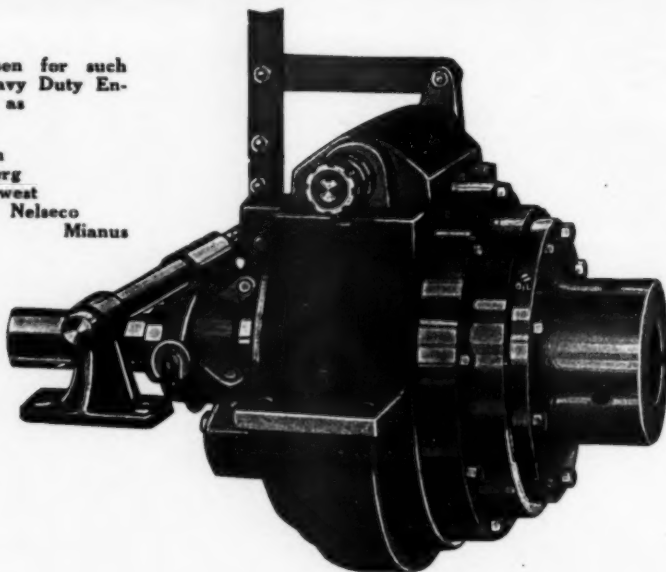
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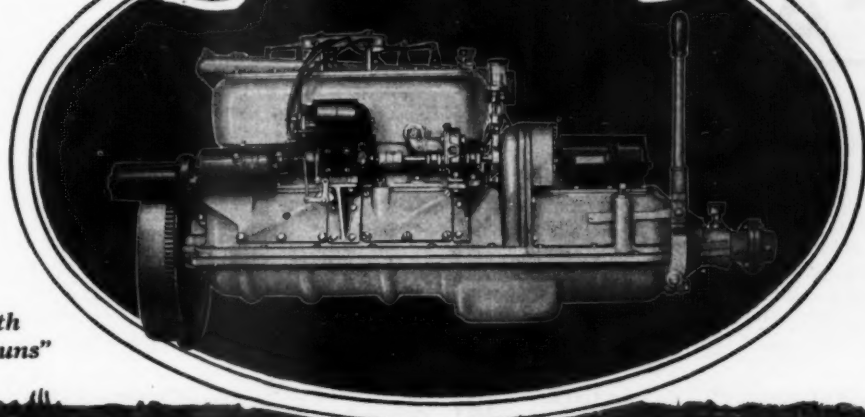
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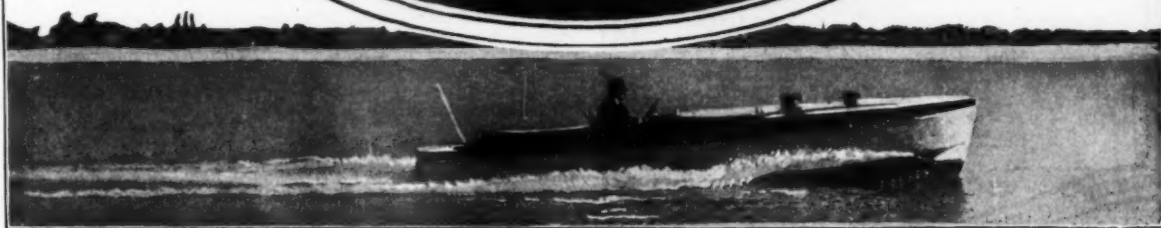
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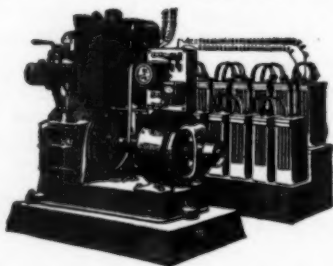
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My Ideal Motor Houseboat No. 2, Gertie Lee

(Continued from page 33)

large enough to take a 3/16 inch galvanized iron wire. To be spaced about 3 feet 6 inches.

Flyrail Cap: There will be a mahogany flyrail cap 1 1/4 x 2 3/4 inches of oval section fastened to top of galvanized iron stanchions.

Awning Stanchions: There will be fifteen 3/4-inch galvanized iron pipe stanchions located as per plan. Lower end to fit over composition socket on deck. Upper end to have open hook to take 3/16 inch diameter wire rope. Awnings to be of 12 oz. standard khaki.

Wheel and Steering Gear: There is to be a vertical mahogany wheel 36 inches diameter mounted on bronze shaft. Actuating bronze beveled gears in housing, and which in turn operate a rack and pinion by means of bronze shaft. Said rack and pinion to be of cast bronze, rack to work athwartships and connected to quadrant with 1/2 inch flexible plow steel wire rope. Quadrant to be galvanized cast steel.

Rudder: To be of two bronze plates riveted to wooden stock.

Capstan: One 7/16 inch bronze capstan to be properly and securely fastened to deck where shown.

Anchors: Two galvanized iron anchors to be furnished and placed aboard the yacht. One of about 75 lbs. Cape Ann pattern and one of about 125 lbs.

Flagpoles: Two spruce flag poles to be furnished with brass flagpole sockets.

Davits: To be, one pair of 2 1/2 inch outside diameter galvanized steel tube davits set in brass sockets placed on plank-sheer and supported with a heavy cast bronze bracket on deck.

Boat: One 11 foot dinghy built with oak frames and keel, cedar planking, copper fastened mahogany seats and trimmings. To be fitted with proper lifting rings and furnished complete. To be varnished inside and out.

Cabin Work

Toilet Room forward: Arranged and paneled as per plans with locker on both sides. To have light weight pump w.c. and folding wash bowl properly installed. Sides of room to be finished in wood tile, painted enamel white to height of 2 feet 9 inches. Above line of tile panel work is to be painted white. Mirror over washbowl to be of plate glass in white frame. Floor to be covered with linoleum.

Owner's Stateroom: To be arranged and paneled as shown on plans. To have one double berth built in with drawers underneath and a locker forward, on opposite side a sofa is to be built with cushions and a locker forward. On the starboard side there will be a bureau of mahogany size as shown on plans. Finish in mahogany up to height of 2 feet 9 inches and white wood painted white above.

Saloon: There will be a sofa on port side extending around to forward end of saloon with drawers under. There will be a sofa on starboard side with drawers under. Cushions to be upholstered, spring cushions with material selected by owner. Aft of sofa on port side a locker will be built with mahogany door. On the after end of saloon stairs will be built leading to deck.

Galley: Located aft of saloon on starboard side. Arranged as per plans with dish racks, dresser, copper lined sink, cupboard drawers, closet and galley range. Ice box located inboard from aft bulkhead to closet under stairs. To be neatly lined with zinc and have double walls with compressed cork between to insure good insulation. Floor to be covered with linoleum.

After Stateroom: Located aft of saloon on port side. Arranged and paneled as shown on plans. To have a single berth built in with drawers under and a locker aft. A mahogany bureau as located on plans with mirror above. Finish in mahogany up to height of 2 feet 9 inches and white wood painted white above. There will be a closet built under stairs.

Toilet: Arranged and paneled as per plans with corner wash bowl and light weight pump w.c. properly installed. Sides of room to be finished in wood tile, painted enamel white to height of 2 feet 9 inches. Above line of tile panel work is to be painted white. Mirror over wash bowl to be plate glass in white frame. Floor to be covered with linoleum.

Engine Room and Crews' Quarters: To be arranged as shown on plans. To be furnished in white enamel and to contain two transoms with pipe berths over closet, switchboard and lubricating oil tank. A.w.c. is to be located under port transom properly installed. Floor to be covered with linoleum.

In General

Cabin work to be very plain and to be finished in varnish and white enamel. Bottom of beams to be finished with a mahogany cap having edges rounded. All mouldings to be very plain. For dresses, drawers, lockers, etc., the hardware is to be of bronze or brass of proper size and of plain pattern. Jamb catches on all doors, and where locks are used the same to be of Yale style.

(Continued on page 90)



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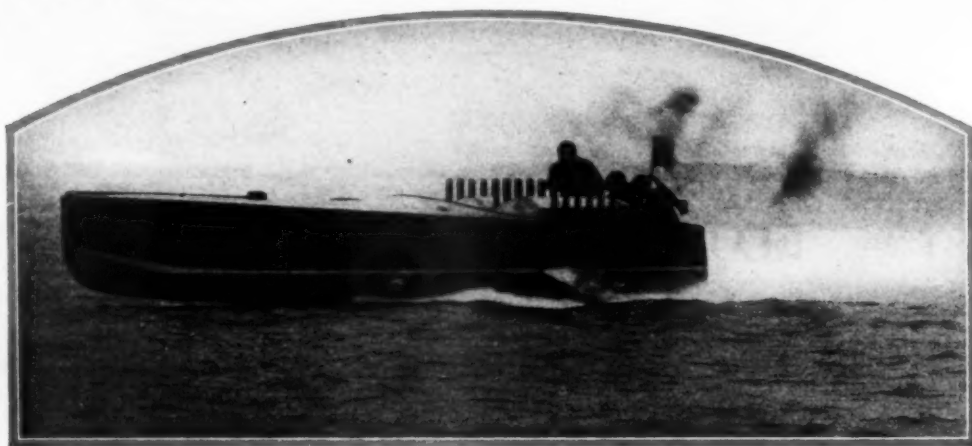
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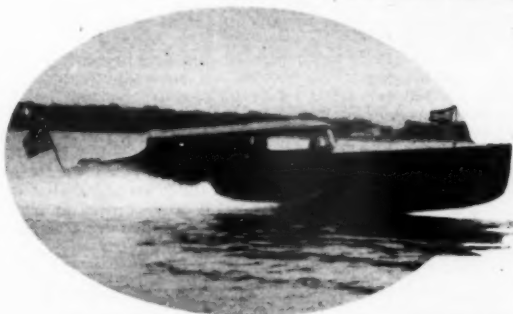


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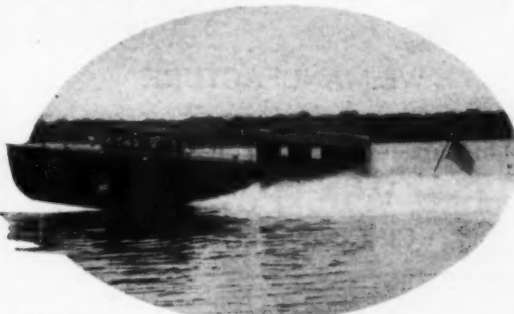
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Mary K.

Powered with two LM6 Hall-Scott
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**NIAGARA MOTORS
CORPORATION**

206 Niagara Blvd., Dunkirk, N. Y.

My Ideal Motor Houseboat No. 2, Gertie Lee

(Continued from page 90)

All windows, companionways, skylights and portlights to have suitable copper screens in mahogany frames. Frames to be finished in varnish. Bureaus and lockers in owner's quarters to have glass knobs.

Plumbing: In forward toilet there will be one closet painted white enamel having nickel-plated trimmings. Folding lavatory as located on plans. In after toilet there will be one closet painted white enamel having nickel-plated trimmings. One china corner bowl with Pullman pumps attached to discharge overboard. Crew's quarters to have a Sands or Curtis water closet located and properly installed.

Galley sink to be of size shown on plan made of pine, copper lined and piped to drain directly overboard. Galley pump located in convenient place connected to main tanks to supply water to galley sink. Ice box to be lined with zinc and to be discharged overboard. A rotary hand bilge pump to be located in engine room and piped from lowest point of bilge discharging overboard.

Gasoline Tanks: Two in number located under after deck, each having a capacity of 210 gals. To be made of 14 gauge galvanized steel, riveted and sweated and fitted with proper fills, vents, etc. Each tank to be properly secured and fitted with fill pipe leading to deck with suitable caps.

Water Tanks: Located under cabin floor. Three in number, size as per plan, to be properly fastened and piped with fill pipes to lead to closet in saloon. Capacity of tanks to be about 168 gals.

Painting: Hull to be painted one priming coat on topsides, one coat of green on bottom, all seams puttied smooth and then painted two coats white on topsides and two coats green on bottom. All deck work and mahogany to be filled, shellacked, sand papered and then finished with two coats of heavy varnish.

Below deck to be finished in white paint and enamel on all paint work. All mahogany to be filled, shellacked, varnished and nibbed down with pumice and oil to an egg shell finish.

Aft deck to be left for scrubbing or varnished as owner may desire. Name on name board to be gilded letters. Davits to be galvanized and then painted aluminum.

Equipment:

One 8-inch bell	One draw bucket of canvas
One composition bucket	Two brass tipped boat hooks 8 ft.
Two mahogany flagpoles	Eight life preservers
Four Pyrene fire extinguishers and brackets	
Two sets of pilot rule	One set of boat chocks
Four 6-inch x 22-inch fenders—cotton rope	
One 24-inch megaphone	One Deck or hand lantern
One Deck mop	
One set of side and sailing lights—combination brass	
One brass binnacle with about 6-inch card compass to set in stand on deck.	

Machinery: One four-cylinder Sterling F.H. motor developing 25-55 h.p. to be furnished and properly installed. Engine to have full equipment as furnished by engine builders, including electric starter, batteries, $1\frac{3}{4}$ inch shafting of bronze, couplings, etc.

Tools: There will be furnished a complete set of oil cans and drip pans, three Stillson wrenches and two monkey wrenches.

Exhaust: From the motor to be a light copper tubing through the stern. All circulating water to be run into exhaust pipe.

Electric Light System: The boat will be lighted by a Matthews generating set 350-watt full automatic with 72-hour battery. All wires to be rubber covered and run in mouldings where seen. Mouldings when used to match surrounding wood work.

Fixtures and Lamps: Fixtures and lamps to be of an approved type. All with key sockets located as follows:

Forward toilet—one bracket
Owner's room—two brackets
Saloon—three brackets, one dome
Aft stateroom—two brackets
Aft toilet—one bracket
Galley—two brackets
Engine room—three ceiling, one portable.

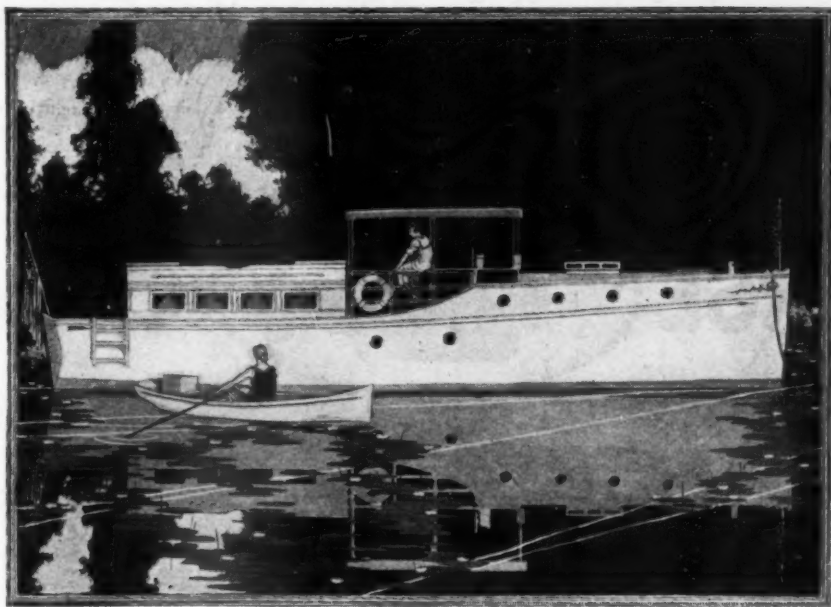
Waterproof plugs for running lights, also suitable plug for binnacle light and searchlight.

All the wiring to be done in a first class manner and the whole system thoroughly tested out.

Searchlight: One 32-volt Golden Glow, 250-watt lamp.

Switchboard: A mahogany switchboard located where shown on plan and fitted with ammeters, motor switches, oil drips, etc.

Horn: A brass Klaxon horn of approved type to be furnished. It is the intent of these specifications, together with the plans, to build and equip the boat as far as the builders are concerned, in a thorough manner.



The new Burger 36-ft. Cruiser—

MOWER DESIGNED—BURGER BUILT

—the veteran yachtsman's choice

It has been designed to incorporate the master recommendations, adaptable to a cruiser of this size, of recognized authorities in the motor-cruiser world.

Then—thirty years of experience in the building of high grade boats has been concentrated on the standardization of this single type.

The result—as was anticipated and planned—is a cruiser offering more “cruisability” for its size and at its cost than had been considered possible previously.

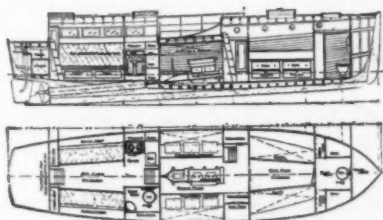
By “cruisability” we mean

the comfort of commodious arrangement coupled with structural perfection and seaworthy and satisfactory performance expected

only in a larger and more expensive craft. This Burger Cruiser is now being produced in quantity and is ready for immediate delivery.

We want you to see what selective design based upon average requirements instead of arbitrary design has given to the motor-boating field.

May we send you the complete specifications and photographs?



A large bridge deck where all may gather; all controls on bridge deck. Two light and airy cabins with full head room—two toilets. Engine room well ventilated, power plant completely accessible, full head room at forward end. Fully equipped galley. Power plant a Scripps Model D four-cylinder, four-cycle motor; 35 H. P. electric starting and lighting system.

Speed 11 miles per hour. Marine plumbing, fittings and furnishings of the highest grade. The price, \$4,950, includes complete cruising equipment. Throughout, the boat is superior in every manner to any cruiser of similar character at its price. Thoroughly, substantially and KNOWINGLY constructed. A cruiser of long life, beautiful appearance, comfortable accommodations and highly satisfactory performance.

BURGER BOAT COMPANY, MANITOWOC, WISCONSIN

BURGER

BOATS BEAUTIFUL

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STANDARD

REVERSE GEAR



THE best insurance protection you can buy for your boat is a Standard Reverse Gear. It serves you every minute the boat is in use, adds to the safety and accuracy of navigation and pays for itself many times over by preventing accidents in tight places.

A poor reverse is worse than no gear at all because sooner or later it is certain to fail you in an emergency. It is better to discard your old unreliable gear at once and replace it with the Standard, or specify a Standard in the first place.

This is a completely enclosed gear,—oil-tight, clean and quiet. It runs in a bath of oil, reducing wear to the minimum. It is strong, light, simple, compact, durable and trouble proof. Its design, materials and workmanship are unsurpassed by any other gear on the market.

If you are buying a new engine this year, tell the maker or dealer to supply it with a Standard Reverse Gear.

Prices \$42.00 to \$147.00

including Ball Bearing Thrust Collar and Coupling. Immediate shipment from stock on all size gears. Write today for new Catalog.

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Best
Boat
Insurance
is a
Standard
Reverse
Gear**

STANDARD GEAR COMPANY

700 Commonwealth Avenue

Detroit, Michigan



*Vester, 30' 9" x 10' x 3' 2", owned by
Fred E. Green, South Lyme, Conn.*

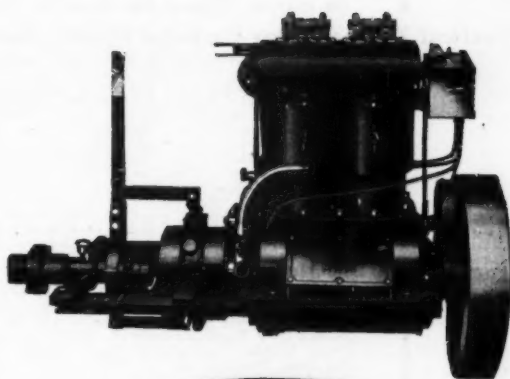
A Quick Pick-Up To Full Speed

WHEN trolling, the Frisbie will throttle down to little more than steerage way and run all day without a miss. While a 2-cylinder Frisbie in a 30-foot lobster boat like the Vester will quickly pick up to a nine-mile gait when running from one lobster ground to another.

Its utter constancy of operation at high or low speed, together with its unusual power, make the Frisbie Valve-in-Head Motor a real friend to fishermen.

Frisbie Valve-in-Head Motors are made in 1, 2, 3, 4 and 6 cylinder sizes—5 to 75 H.P. Write for catalog and name of nearest dealer.

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MOTOR BOATING PRACTICAL HAND-BOOKS

Every motor boatman has long felt the need for a really complete and comprehensive library devoted to their favorite pastime—motor boating. One of the obstacles to the accomplishment of this important work was the difficulty in finding any one writer who could cover the field in its entirety. In presenting the new series of practical hand-books, MoToR BoatinG believes that the problem has been solved at last. These books are edited by Charles F. Chapman, M. E., the editor of MoToR BoatinG, and they are the results of months of untiring effort on his part, together with the best of thousands of suggestions sent to him by motor boatmen themselves. The list of the contents given below will give you some idea of the vast amount of ground covered by these volumes.

Practical Motor Boats and Their Equipment

Volume 1.—The first volume tells you what the ideal boat for various kinds of service should be and what to look for in buying a boat. Many suggestions about decoration and hints on all kinds of equipment. All about steering gear, wireless outfits, electrical attachments, etc. Glance over the list of contents appended herewith: Hulls, Ballast and Seaworthiness; Round Bottom vs. Sharp Bilge; What are the Advantages of Flare? Raised Deck vs. Trunk Cabin; Best Proportion of Beam to Length; Selecting a New Design; The Advantages of Bilge Keels; Open or Solid Deadwood? What Makes a Hull Seaworthy? The \$1,000 Cruiser; Buying a Second-Hand Boat; Types of Bows and Sterns; Exterior Arrangement of Cruisers; The Best Cabin Arrangement; Finishing Up the Cabin; Changes in Interior Arrangement; Interior Arrangement for Open Boat; Propeller-Rudder Arrangements; Best Position for the Rudder; Advantages of the Outboard Rudder; Different Steering Positions; Steering Equipments for Motor Boats; Steering Gear for the Cruiser; The Steering Gear for a Runabout; Steering the Boat from the Side; The Electrical Equipment; Making and Wiring a Switchboard; Electric Lighting on a Motor Boat; The Inexpensive Lighting Outfit; Wiring the Small Cruiser; The Storage Battery; The Dynamo Cut-Out; Wireless for a Small Cruiser; Tender for a Thirty-foot Cruiser; Building a Folding Dinghy; Installing the Boat Boom; What is the Best Galley Arrangement; Ventilating the Galley; The Galley Stove and Its Installation; Making a Fireless Cooker; A Portable Cook Box; Running Water for the Cruiser; How to Build a Portable Table; A Table for the Open Boat.

Practical Motor Boat Building

Volume 2.—As its title implies, this volume takes up the building of your own boat. It also covers the construction of the necessary fittings such as awning, windshield, etc. Every boatman sometime or other builds a boat, and a book of this kind will save much time and prevent many mistakes. List of contents: Types of Motor Boat Fastenings; Boat Building Woods; Laying Down a Boat's Lines; Converting a Trunk-Cabin Cruiser; A Steam Box for Amateur Builders; Joiner Between Stem and Keel; Fastening the Frames and Floors; Boring the Forgotten Limbers; Fitting the Garboard Plank; Boring the Shaftlog; Fitting the Stuffing Box; The Stern Bearings for a Cruiser; A Water-Tight Companionway; How to Canvas a Deck; Hinged Water-Tight Hatches; Making a Water-Tight Hatch; The Coaming of an Open Boat; Fitting a Swinging Port Light; Making a Self-Bailing Cockpit; A Water-Tight Window Sash; Making a Water-Tight Skylight; How to Build an Engine Housing; How to Make an Engine Cover; Building a Tool Locker; Constructing an Extension Transom; How to Make a Pipe Berth; An Ice-Box for a Cruiser; Installing a Toilet; How to Rig a Signal Mast; How to Make a Spray Hood; Fitting a Folding Windshield; An Awning for the Open Boat; A Cover for the Open Cockpit; Screens for the Side Light; A Support for the After Light; A Seat for the Man at the Wheel; Removable Davits for the Cruiser; The Boarding Steps; A Bow Rudder for Your Hydro; The Motor-Driven Club Tender.

Practical Things Motor Boatmen Should Know

Volume 3.—Navigation is one of the important subjects covered in volume three of the series. Tells you how to steer, how to increase the factor of safety, and a host of other things relative to the proper running of your boat. The chart and compass are both fully explained in a clear and comprehensive manner. The list of contents will tell you more about it; Advice for the Beginner; Lessons Learned from Experience; Good Things to Know; Increasing the Factor of Safety; Which Way Should the Boat Steer? Why a Boat Steers Badly; Why do Boats Squat? Figuring the Boat's Speed; Ballasting the Cruiser; Getting Off Bottom; To Ride Out a Storm in a Motor Boat; The Why and How of Storm Oil; Preventing Fire; Handling Ground Tackle; Government Charts; Stowing the Anchor on a Cruiser; Diminishing Deviation; Preventing Electrolysis; Stowing and Using Charts; How to Make a Chart Case; Keeping a Motor Boat's Log; How to Make a Sextant; Tides and Tidal Waters; Taking Her Through the Canals; The Best All Round Dinghy; Towing the Tender; Handling the Dory in a Seaway; Getting the Tender Aboard; Planning for a Cruise; Equipping for a Cruise; Equipment for Offshore Cruising; Novel Events for Regatta Day; Handicapping; The Object of a Handicap Rule; Laying Off a Race Course; Measuring the Length of a Race Course; Preparing a Boat's Bottom for a Race; How to Build a Turning Buoy; Starting Boats in a Race; Stowing the Signal Flags; Fitting a Gun Mount; A Fish Box for Your Cruiser; A Cabin Wall Rack.

Practical Marine Motors

Volume 4.—All about the marine motor; what it should and should not be. Tells why the automobile engine is unsuccessful in marine work. The best location for your engine, the ideal engine bed, the fuel tank, exhaust and countless other suggestions that will enable you to get the best results from your power plant. List of contents: Purchasing a Marine Motor; How Many Cylinders? Power per Cylinder; High Speed vs. Heavy Duty; Long Stroke vs. Short Stroke; Correct Motor Design; Changes in One's Power Plant; The Things that Cause Vibration; The Automobile Engine for a Boat; The Best Position for the Motor; The Ideal Engine Compartment; Placing the Engine in the Hull; Installing a Motor in a Canoe; Installing Power in a Yawl; Converting a "Banker" to Power Engine Installation in a Hydroplane; Putting Power in the Rowboat; Limits of Shaft Inclination; Constructing the Engine Bed; Getting the Motor Aboard; Lining Up the Propeller Shaft; The Best Exhaust; Mufflers vs. Under-Water Exhausts; Installing an Under-Water Exhaust; Primary Batteries for Ignition; Keeping the Ignition System Dry; Installing a High-Tension Magneto; From Make and Break to Jump Spark; Installing the Gasoline Tanks; Taking Care of Extra Gasoline; Spark and Throttle Controls; Constructing a Rear Starter; Propeller for Engine and Hull; Installing a Universal Joint; Gearing Motor to Propeller Shaft; The Automobile Throttle; Harnessing the Main Engine; Rebabbitting a Worn Bearing; Should Fuel Line be Inside or Outside.

Practical Motor Operation and Maintenance

Volume 5.—One of the most valuable books of the entire set. Your motor's ills and how to cure them. This volume tells you how to adjust your carburetor, how to fit piston rings, how to remedy poor compression and a number of other things that will enable you to doctor your own motor. List of contents: Locating the Motor's Troubles; The Overheated Motor; Starting in Cold Weather; Overhauling a Marine Motor; How to Save Fuel; The Fuel Situation; Using Low Grade Fuel; How to Run on Kerosene; Supplying the Fuel to the Carburetor; Adjusting the Carburetor; Cleaning the Fuel Tanks; Cleaning the Gasoline Line; Stopping Up the Leak in the Tank; A Home-Made Gasoline Gauge; Carrying an Extra Supply of Oil; Mixing the Fuel and Lubricant; Remedying Leaky Compression; Killing the Carbon Jinx; Tool and Spare Parts to Carry; Removing and Replacing Piston Rings; Repairing a Leaky Cylinder; Grinding a Motor's Valves; Setting the Valves; Timing the Ignition System; Cleaning the Water Jacket; Making and Fitting a Gasket; Patching Up a Bearing; Straightening the Sprung Shaft; Truing a Bent Propeller; Removing the Flywheel; Separating Couplings and Pipe Fittings; Changing the Shaft Hole Location; Utilizing the Exhaust; Disposing of the Bilge Water; Heating a Small Cruiser's Cabin; Operating the Outboard Motor; The Clean and Quiet Boat; Charging a Storage Battery; When the Motor Stops Unexpectedly; Making a Unit Power Plant.

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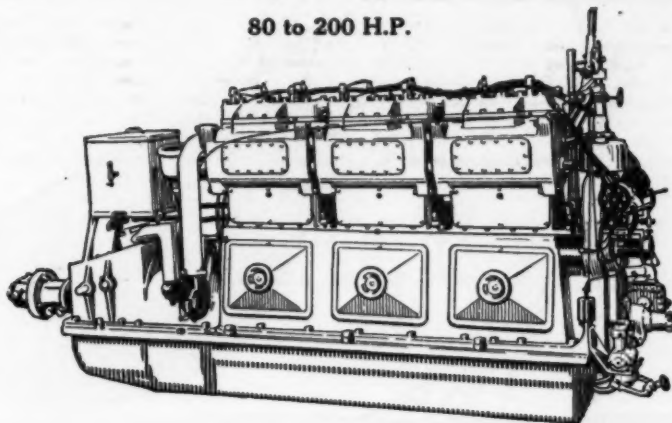
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Winton

**Gasoline
Marine Engines**

80 to 200 H.P.



They Like Hard Work

For workboats and yachts, the Winton Engine Works builds six and eight-cylinder gasoline engines in five sizes.

These are exceptional engines, built to a high standard and able to perform hard work with little fuss, little noise and practically no vibration. Incidentally, their operation is so clean that a Winton marine engine room aboard ship can be as spick and span as a library.

Engineers operating Winton gasoline marine engines are uniformly delighted with them, and we have a long list of satisfied

buyers which we shall be glad to submit to you if you are interested.

Details of all five of these engine sizes are now available in a new booklet, copy of which we shall send you on request. Also, our Engineering Department is ready to cooperate with you and your Naval Architect in working out a happy solution of your precise needs for either workboat or yacht. We shall be pleased to have you write us.

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CHAMPION Spark Plugs are a source of confidence at sea.

They *stand up* consistently under the most trying power boat conditions, due to the famous No. 3450 Insulator.

Its unyielding strength ends the usual spark plug troubles caused by marine engine temperature variations and vibrations.

Our patented asbestos gasket construction is another exclusive Champion feature.

There is a Champion Spark Plug specially designed for every type of gasoline engine.

Be sure the name Champion is on the Insulator and the World Trade Mark on the Box.

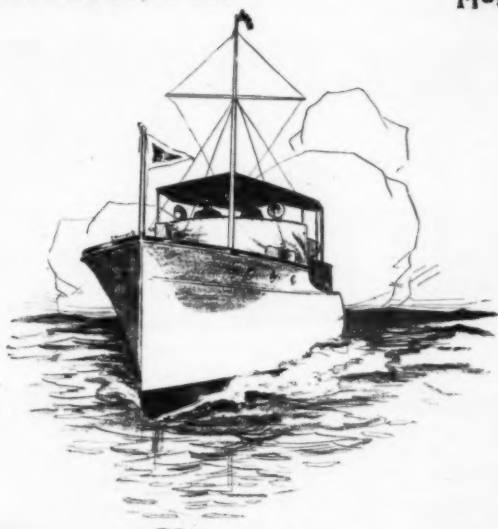
Champion Spark Plug Company

Toledo, Ohio

Champion Spark Plug Company of Canada, Limited, Windsor, Ontario



J. A. S. 43— $\frac{7}{8}$ —18
Price \$1.00

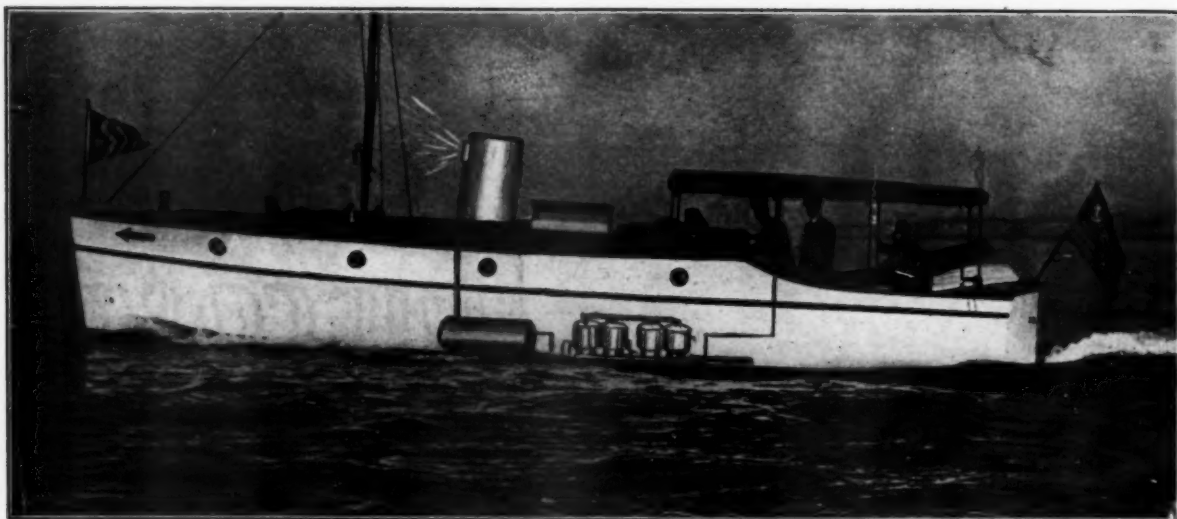


COUNT THE COST!

Money saved by using cheap, inferior oils for lubrication is soon eaten up by the cost of repairs because of burnt-out bearings, scored cylinders, carbon, etc., due to imperfect lubrication. To say nothing of the time lost during these repairs. Most owners learn, sooner or later, that MONOGRAM lubrication is true economy. Use MONOGRAM OIL for the efficient lubrication of your boat.



The Makers of Monogram
NEW YORK LUBRICATING OIL CO
NEW YORK



NAVIGATION LAWS DEMAND A WHISTLE

Why Use An Auto Horn?

The first real whistle outfit ever built expressly for your boat.

The whistle can be operated at anchor, as well as under way, by means of air storage.

The best that can be produced and complete in every detail.

Standard Equipment

MODEL A

Compressor—1" bore, 1½" stroke, 2 cylinder opposed

Safety valve

Tank—8" x 18"

Gauge and whistle

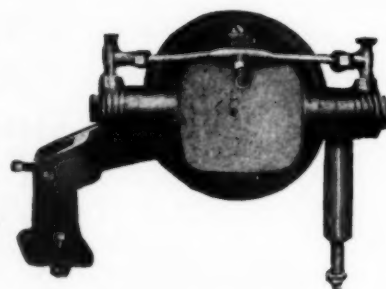
Tubing—12'

MODEL B

Tank—12" x 24"

Gauge and whistle—larger

Tubing—20'



General Air Compressor, is friction driven, running in contact with the fly wheel of the engine, delivering an abundance of air to storage tank. Used in connection with General Navigation Whistle.



(1) The Lightning Cut
(2) The Wandering Oil Groove

GENERAL LIGHTNING CUT PISTON RINGS

will absolutely give you equa-radial pressure on your cylinder wall, obviate the loss of compression, and maintain the roundness of your cylinder.

The Wandering Oil Groove not only lubricates the cylinder wall, but effectively lubricates the ring itself, retaining the resiliency of the metal and avoiding friction.

General Lightning Cut Rings are guaranteed to give the best possible results. Properly fitted and used, they will effect economy in many ways. (Write us for further information.)

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Universal

MARINE MOTOR

Dependable as the Tide

Specialization in building one type of marine motor has developed unusual skill in every department of production. The Universal 9-12 H.P. motor has long been recognized all over the world as a reliable power plant for boats of any type up to 30 ft. Its smooth, masterful delivery of power has made it the chosen favorite of experienced boatmen.

The Universal has been so perfected as to become a standard type. There are no costly yearly changes of models to needlessly increase the price of the Universal motor.

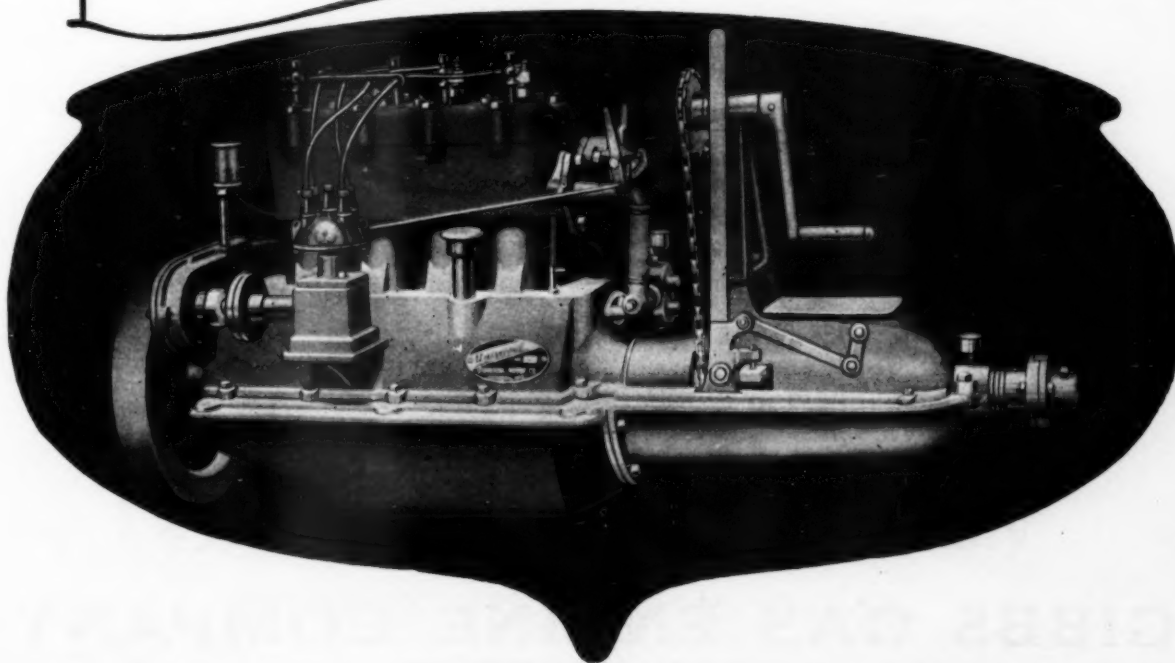
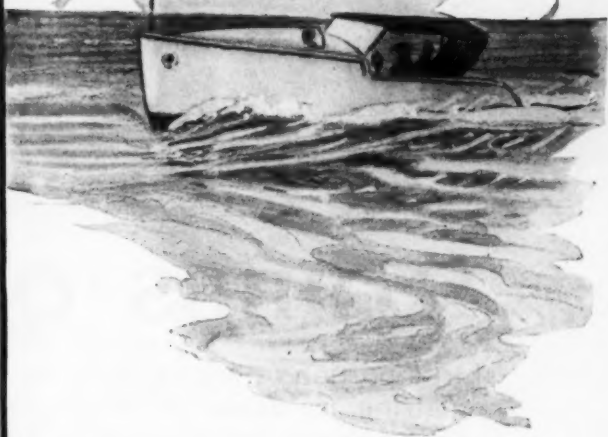
The Universal 4 K.W. Generating Set furnishes steady, flickerless electric light and is as popular as the Universal Motor. It is widely used for lighting boats and boathouses, summer camps and homes.

Write for the Universal Catalog.

UNIVERSAL MOTOR CO.

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Anything from a little power tender to a good sized coaster, yacht or commercial boat is within our range. We are equipped to perform every operation within our own plant.

Machine shop, joiner shop, paint shop, blacksmith shop, dry dock, marine railway, complete stocks of lumber and other materials, plenty of room, all manned by skilled workmen and directed by experienced boat builders—these are the facilities offered by this company.

Let us tell you some of the advantages of having your boat built or overhauled here in Florida.

BUILDING — OVERHAULING — REPAIRING

Runabouts, Cruisers, Houseboats, Commercial Boats

Estimates on any work furnished on request.

GIBBS GAS ENGINE COMPANY

JACKSONVILLE, FLORIDA

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THE MEN WHO RUN THEM ARE THE MEN WHO KNOW

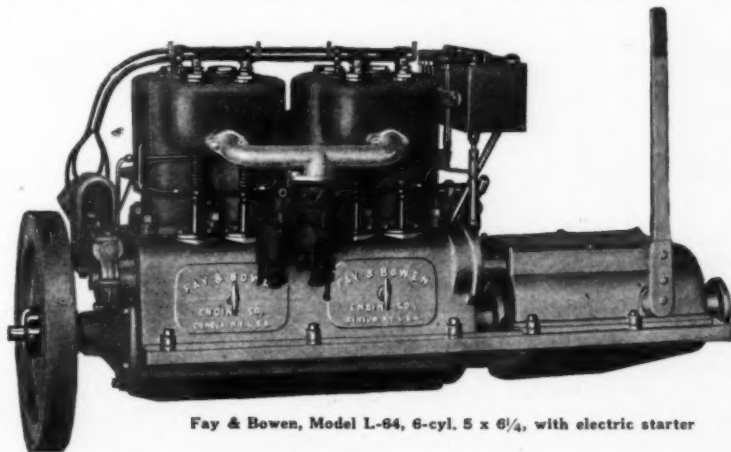


Water Witch, 54 x 10.
Owned by Richard Menzel, Esq., 508 Granby St., Norfolk, Va.
Powered with Fay & Bowen Model L-64

We quote from letters written us by Mr. Menzel dated
Sept. 14 and Sept. 18, 1920

"I have just returned from a two months' cruise as far east as Marblehead and I cannot praise engine enough for its consistent and perfect behavior on this long cruise, on one occasion running twenty hours without ever missing a beat."

"The tests to which I subjected your engine were severe, the boat most always pitching in a sea and the engine at all times ran without a miss. I could not help but enjoy that feeling of security a good engine only can give."



Fay & Bowen, Model L-64, 6-cyl. 5 x 6 1/4, with electric starter

Fay & Bowen Engine Company

104 Lake Street

GENEVA, N. Y.

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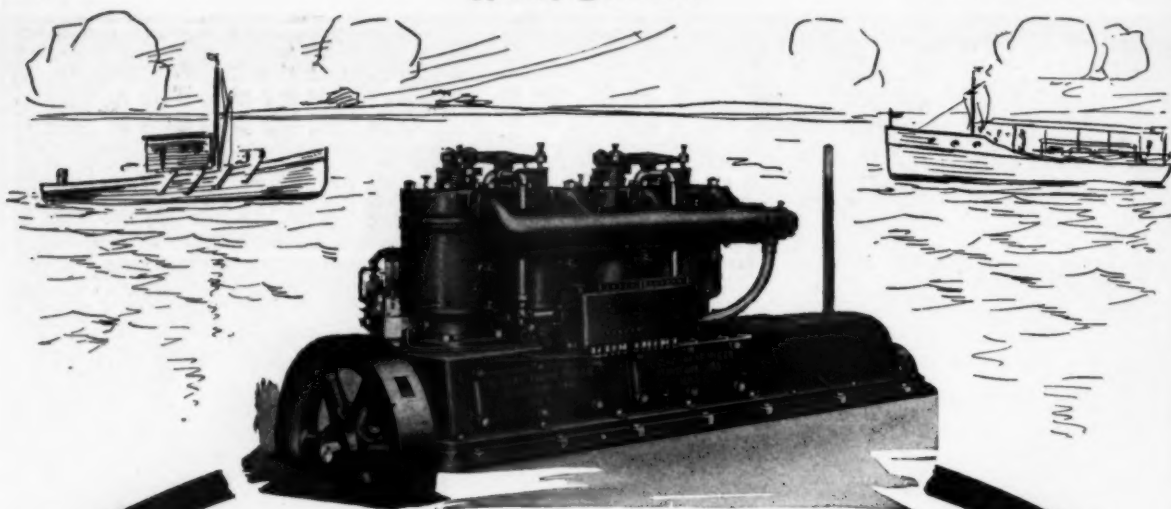
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